1: Hocart Y-5 (ca. 1920) 1929 OQ6 Lau OQ6
Lakemba

LAKEMBA

PHYSICAL FEATURES AND VILLAGES

Lakemba is the chief island of the Lau Archipelago south of Naiau. (See fig. 2.) Its high chief bears the titles of Roko Sau and Tui Naiau (Lord of Naiau). The island is typical of those in the dry zone of Fiji. Except for one or two summits, the hills are without forests. Their red slopes are bare or covered with bracken, with here and there a *Casuarina* or screw pine (*Pandanus*). The good soil is in pockets near the coast, where tall trees grow, if allowed, but as most of the good land is period-

FIGURE 2.—Map of Lakemba (based on Admiralty chart).

ically fired before planting, the ground is mostly covered with reeds, long and strong, and useful for making walls and fences. There is level land only round the coast, a belt that varies in width and extends into the hills as flats suitable for irrigation. The largest of these is the fertile valley of the Nakula stream, which penetrates to the foot of Ulu i Kendekende, the highest hill.

1: Hocart Y-5 (ca. 1920) 1929 OQ6 Lau OQ6
Lakemba

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Naturally, all the villages are now on the coast, and a road made by the Tongans, following the shore, serves them all. Each village has its passage through the reef, some fit for large cutters, some only for canoes at high tide. The passage most in use, though narrow and difficult, is Nandawa, opposite Tumbou.

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The whole population in Lakemba (about one thousand) resides in compact villages. Tumbou, the chief village, where reside the chief and his family, lies on the west bank of the Nakula stream and has a population of about 180. On the other bank is the small village of Levuka. Between Levuka and Wathiwathi, among the rocks of the southern promontory, is the site of an extinct village, Tarukua, the survivors of which are in Wathiwathi. Beyond Wathiwathi, begin the mangrove swamps and between them and the irrigated lands is Waitambu. A long gap stretches between this village and the site of Narothake, a former village, the inhabitants of which are in Nukunuku. At Nukunuku, the shore shelves very gradually to the reef, which here lies farthest removed from the island—a distance of ten miles. The distant anchorage is known as Tawaveiwekani (No-relation) because the way is so long that strangers staying in the village neglect to send a share of the feast to those of their party who are looking after their canoes.

The village of Yandrana ranks next Tumbou in size. Nasangalau is third largest, but the second in rank. Near it rises Vangandra, a precipitous rock, jutting out from the hills, on the top of which is the site of the oldest settlement recorded in Lakemban history. The anchorage of Wangatalata (Wanggatalatha), about two miles from Tumbou, was important in the olden days.

The villages other than Tumbou and Levuka form what is known as the "Country." Lauandoko, as opposed to the "Town." If the term Lauandoko is not a corruption, it means "the digging pole strikes," and probably expresses the fact that the Country plants for the nobles in the Town. I have also once heard these villages described as the "Back of Lakemba," but one informant limits this term to the villages on the north coast from Nasangalau to Nukunuku.

Tumbou is the center of culture, manners, and politics. (See Pl. II, *D*.) Villagers coming to Tumbou feel ill at ease, for though no longer compelled to go about Tumbou with folded arms, they are expected to be humble and are conspicuous by their lack of assurance.

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Differences in type and character exist between the villages. (See Pl. I.) "Villages differ in the men," says a native, Tui Wathiwathi, "it may have something to do with the soil; some places have soil productive of strong men (*nggele tamata kaukaua*). Doubtless it is the will of God."

1: Hocart Y-5 (ca. 1920) 1929 OQ6 Lau OQ6
Lakemba

canoe, the sail was carried round by way of the outrigger with the result that the canoe stopped dead. Hence the rhyme:

Tui Ongea wiri kata:	The Chief of Ongea sits on the canoe;
Me kau saka i thama a latha.	Let the sail be carried on the outrigger.

Ongea ceased to be noble when Fulanga beat it in war. Since then its people are the lowest in Lau and very shy. When the Fulanga people go to Ongea and kill the fowls, and the natives go about with folded arms and stooping. The Ongeans call Fulanga, Mbauleka (Little Mbau), because it is to them as Mbau is to Fiji.

In Ono are two uninhabited islands, Tuvana i Tholo and Tuvana i Ra, the first belonging to the clan of Nukuni, the other to Lovoni.

The men of Ono were once red-skinned; now they are shorter and darker. The inhabitants of old were Tongans, judging from their present habits, for every day they prepare food with coconut cream and make an oven on the shore. Their physique is Tongan. [I have seen some very un-Fijian types in Ono, thick set with straight hair and Polynesian features.] They are good at enduring pain.

Ono has a system of levy called *vatongia;* if the chief fixes the rate of a feast at four yams, a man who has one piece of land contributes four, one who has two contributes eight and so on.

As a result of the murder of Niumataiwalu, the founder of the present Lakemban dynasty, war broke out between Matokana, the chief village, and Onolevu. Onolevu won and became chief instead of Matokana, he also became Envoy to Lakemba. A third village is called Ndoi.

Ono was settled peaceably by people from Wathiwathi, and all the clans of Wathiwathi are to be found in Ono. Vatoa was subject to Ono from of old; it is also, to a certain extent, descended from Wathiwathi. Ono used to "go to Wathiwathi" but Naiatha conquered it and "brought" Ono to Tumbou. Ono was formerly a land ignorant of chiefly ways. Now, following the example of their chiefs, they have learned manners and excel. Many Tongans reside in Ono.

Mothe is a noble land (*vanua vakaturanga*); but not originally, like Kambara; it became noble later because the inhabitants are true relatives of the nobles of Lakemba. Formerly the children of the Lord of Naiau intermarried with Mothe. It must have been daughters whose descendants live in Mothe, since the nobles of Lakemba intermarried equally with the other islands. Mothe and Navuanirewa are said to have a common ancestry (*kawavata*).

Oneata lies low and there is a marsh in the middle. At times the island swarms with mosquitos. The reef is called Mbatiyanitu. There are two villages on Oneata. Wainggore (?Wainggori) and Ndakuiloa. Of old there was only one. The clans of Wainggore are: Longaniu, Tavanga, Tumba, Waleti. Of Ndakuiloa they are Wako, Nakuli, Mbutha, Tumba. Mbutha, now extinct, were the heralds.

Oneata is not a noble land. The chief is called Tui Oneata (lord of Oneata) only since Christian times; it is the title of the district headman under the Government. The order of succession has been Mbalemalua of Tumba, Saiasa of Longaniu, Sakaraia of Tumba, Nathanieli of Longaniu. Longaniu takes precedence. The clans intermarry because they are cross-cousins.

The people do not clap hands when the chief of Oneata drinks kava. The present chiefs originated from Nukunuku in Lakemba; they came from overseas: it is so in all countries in Fiji. Two brothers came from Nukunuku; they came because they had a god in common (*tevoro vata*) with Oneata, called Tui Oneata. They were sister's sons (*vasu*) to Oneata. Manjingi, the younger, became chief; the late Tui Oneata, still living, was his grandson.

The present Lord of Oneata originates from Tonga. He is a descendant of Tui Afitu, who was a chief in Tonga. He went to Lakemba and married there. He had one daughter whom the people of Lakemba sent to Oneata. The descendants of Tui

2: Thompson E-5 (1933-1934)1940 OQ6 Lau OQ6
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131 north and south along the eastern margin of the Fiji group. The Lau Islands lie at the meeting point of two culture areas, Melanesia on the west and Polynesia on the east (fig. 1, insert). Moreover these small islands in the central Pacific define the eastern border of the submarine shelf, which extends from Asia eastward into Oceania, and mark a change from continental to insular geological formation and a corresponding transition in flora and fauna. The island world west of Lau is more compact than that east of the archipelago and the flora and fauna are richer.

131 631 The southern Lau Islands (fig. 2) are: Oneata; Mothe; the Kambara group composed of Kambara, Namuka-i-Lau (Namuka), and Komo; the Fulanga group composed of Fulanga and Ongea; and the Ono group composed of Ono-i-Lau (Ono) and Vatoa. They are part of the chiefdom of Lakemba, which also includes the islands of Lakemba, Naiau, and Thithia in central Lau. The islands of both central and southern Lau are subject to the high chief at Lakemba.

North of the chiefdom of Lakemba lie the Exploring Isles, formerly subject to Thakaundrove on Vanua Levu; and on the west lies the independent Moala group consisting of Totoya, Moala, Matuku, and Vanua Vatu. The chiefdom of Lakemba, the Exploring Isles, and the Moala group comprise the colonial political province of Lau. To the natives, however, only the islands south of Lakemba, excluding the Moala group, are known as Lau.

● 133 Based on differences in geological formation, the Lau Islands may be divided into three groups: volcanic islands, limestone islands, and islands composed of both limestone and volcanic rocks. Of the important islands in the chiefdom of Lakemba, Mothe, Komo, and Thithia are volcanic; Lakemba, Kambara, Oneata and Ono are composed of limestone and volcanic rocks; and Wangava, Fulanga, Ongea, and Vatoa are composed wholly of limestone. These geological differences form the basis of economic life in southern Lau. The natural resources of the three rock types are supplementary and the group is economically interdependent.

The volcanic islands rise from sandy beaches toward a central ridge or hill. Their grassy slopes are forest free, and streams flow through their fertile valleys. They are rich in garden lands which grow yams, taro, manioc, breadfruit, bananas, papaya, and other tropical fruits in abundance, but they lack the forest resources of the limestone islands.

133 262 [134] The limestone islands are characterized by a heavily forested limestone basin. Small pockets of poor soil, on which yams and taro do not grow well, serve as garden lands. The staple food is manioc, supplemented on some islands by sweet potato, on others by breadfruit, and by roots, nuts, leaves, and fruit from the jungle. With the introduction of manioc and sweet potatoes in recent times, the inhabitants have become gardeners. The limestone islands

[Text continues on p. 12. - Analyst]

2: Thompson E-5 (1933-1934)1940 OQ6 Lau OQ6
Kambara

133 262 have calm, shallow lagoons, abounding in fish and shellfish which are an important part of the diet. Most of these islands are deficient in food but rich in timber and jungle produce which provide the raw materials for their industries.

132 Lau has a tropical climate. During the dry season, which lasts from April to October, the cooling southeast trades blow regularly and the seas are calm. An extensive interisland canoe traffic is carried on during these months. The remainder of the year is rainy and warm with irregular winds, especially during the "hurricane" months of January, February, and March. Fortunately hurricanes are infrequent. Drought is a constant menace on the limestone islands, for rain is quickly absorbed by the sharp, porous limestone. There are no streams and practically all the fresh water used by the natives must be collected in tanks and utensils. On each island there are a few water holes which are usually brackish, but the native technique of living requires little fresh water.

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361 The population of the islands is concentrated in coast villages. Each village is located on a sandy flat along the beach and is usually surrounded by a coconut grove. Frequently the site is planted with breadfruit trees. Usually the village land is divided into strips, which run from the beach to the cliffs; and each strip is owned and occupied by a clan (*matanggali*, formerly a hamlet in garden land or bush clearing, see p. 35). The clans of highest rank occupy the center of the village. Their houses dominate the ceremonial ground (*rara*), where village feasts are distributed and ceremonies, dances, and games are held.

A description of the islands and villages which were studied follows.

Kambara

621 133 Kambara is a basin-shaped mass of limestone, about 4.5 miles long and 3 miles wide. The rim of the basin is an irregular ridge about 60 meters high. Here and there the precipitous, seaward cliff falls away, giving space to a sand flat grown with coconut palms. On such flats are situated the four villages of the island: Tokalau, Lomatchi, Nggalinggali, and Undu. Kambara is nearly surrounded by a coral reef which breaks on the northwest coast, providing the only anchorage. The village of Tokalau is located opposite the anchorage.

Kambara combines the natural resources of both volcanic and limestone islands. The heavily forested interior of the island is honeycombed with pits and caverns. Pockets of red, residual soil of an acre or so are cultivated on the eastern edge of the basin and in the center where the elevation is only about 24.4 meters. A volcanic outcrop, Ndelaioloi, rising in the northwest part of the island to a height of 143.3 meters, provides the island's best soil, and here most of the gardens are located. The main garden products are manioc and sweet potato. A coarse quality of pandanus grows on Kambara. The principal

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2: Thompson E-5 (1933-1934)1940 OQ6 Lau OQ6
Kambara

resources of the island are hardwoods, especially greenheart of India (called *vesi, Intsia bijuga*) and *mbau* (probably *Pittosporum brackenridgei*) which grow in the heavily forested interior. In Fiji the greenheart grows abundantly only on Kambara, the historic center of canoe building for the whole group and for Tonga as well.

TOKALAU

Tokalau village (fig. 3; table 1) is on the northwest shore of Kambara, at the foot of Ndelaioloi. It is the highest ranking village on the west side of Kambara and the home of the titular chief of Kambara, Tui Kambara. The village title, used on ceremonial occasions, is Nukuleka. The 125 inhabitants

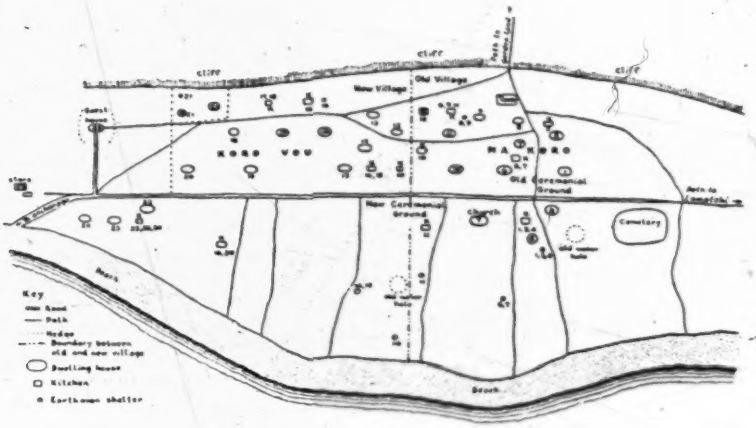

FIGURE 3.—Sketch map of Tokalau village, Kambara. (For household census see table 1, pages 14-21.)

occupy 26 sleeping houses. Tokalau is one of the few villages in southern Lau which has a Chinese store. Imported trade articles are exchanged for copra or cash. A roadway runs from the landing opposite the anchorage through Tokalau southward toward the village of Lomatchi. Most of the sleeping houses are located in a clearing on the cliff side of the road. A few, together with earth oven shelters and kitchen huts, are situated in the coconut grove on the shore side. The old section of the village is located just below a break in the limestone cliff on the most direct path from the beach to the garden land and the old fortress sites. The path also leads through the jungle across the island to the villages of Nggalinggali and Undu. The village fishing grounds extend along the adjacent shore from Vatu Loaloa to Ndaku.

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Kambara

621 Fresh water is scarce in Tokalau. The village reservoir is out of repair.
133 Rain water is collected in small tanks or barrels from the tin roofs of several
[312] houses, and from a fresh water hole (named Nai Mariko), located in the nearby bush. Two concavities in the village mark the dry sites of brackish water holes.

621 Old informants say that at least some of the ancestors of Tokalau inhabi-
133 tants lived in Nakorovusa (p. 217), a fortress on the cliffs above Tokalau,
712 before moving in Christian times, when Manoa was chief of Kambara, to Nakoro, the old village of Tokalau. Tokalau people also occupied Ndelaioloi (p. 218), the fortress at the summit of the hill above the village. Naisevou (p. 216; fig. 21), a fortified village just below Nakorovusa, was built by the nobles of Tokalau; and Korokoroilulu, on the slopes of Ndelaioloi, was a hamlet of the Katoka clan of the land people, the aboriginal inhabitants of Kambara.

LOMATCHI

621 Lomatchi, the lowest ranking village on Kambara, lies half a mile south
133 of Tokalau on the west coast of Kambara at the foot of Ndelaioloi. Its title is Numbaravi. Lomatchi, the smallest village on the island, has only 47 inhabitants, occupying nine sleeping houses. Most of the houses are built directly on the ground, since many houses built on stone-faced mounds were destroyed by a hurricane a few years ago. The houses form two rows, one on each side of the road, which runs parallel to the shore. A path to the gardens on Ndelaioloi, where Lomatchi owns a relatively large amount of good garden land, meets the road at the north end of the village. The village fishing grounds, which extend along the adjacent shore from Vatu Loaloa to Salia, are the best on Kambara.

[312] A concrete reservoir provides fresh water for the village, and brackish water is obtained from a hole 250 meters northward.

Informants say that formerly the natives of Lomatchi occupied Nawi and Old Lomatchi hamlets in the garden land above the present village site. They used two fortresses on the cliffs above the present village, Nakoroyangai to the south, and Nakaka (p. 218) to the north. In Christian times they moved to Vuniviavia (also called Vuninggalaka), a village site between Lomatchi and the cliffs. There is a dispute between the elders of west Kambara con-
[31] cerning the name of this site. During the epidemic of measles in Lau (1875) they moved to Naisauvesi on the sandy flat north of the village where the house sites may be seen, and thence to the present village site.

NGGALINGGALI

[12] Nggalinggali (called Tanggu by the natives) is the ranking village on the east side of the island. Its title is Na Koro, the name of the fortress site on the cliff above the village.

2: Thompson E-5 (1933-1934)1940 OQ6 Lau OQ6
Kambara

the cliff above the village. Nggalinggali is situated toward the north end of Kambara within easy sailing distance of the valuable, uninhabited island of Wangava. With 154 inhabitants, it is the largest village on Kambara. Its 32 sleeping houses are near the beach in two rows, one on each side of the road, which runs parallel to the shore. Most of Nggalinggali's garden lands are on Wangava, but some are found on the slopes of Ndelaioloi, in the interior Kambara basin, and on the ridge above the village. A path leads from the northwest corner of the village, up the steep cliff into the interior basin, and across the island. It connects Nggalinggali with Ndelaioloi, and the villages of Tokalau and Lomatchi. These villages, as well as Undu, may also be reached by skirting the island in a canoe or on foot at low tide.

The reservoir is out of repair, but brackish water is obtained from two water holes, one at the north end and one at the south end of the village.

On the sandy flat north of the village, are house sites of the old village of Tanggu, occupied immediately before the present site. On the limestone cliffs above Nggalinggali are the ruins of Nakoro (p. 218), a walled fortress which was used by the Nggalinggali group. Adjoining Nakoro on the southwest is Matanaiundu, a small fort which supplemented Nakoro.

At Naimarai near Naikeleangga on the north point of the island is a cemetery and village site, which, according to the natives, was formerly occupied by Tongan canoe builders. The ditch across which the hull of a double canoe was laid while under construction may still be seen. The natives say that near this spot was situated an assembly house (*vale ni mbose*), used as a meeting place for representatives from the two hostile sides of the island.

UNDU

Undu is the most isolated village on Kambara. Located on the east shore about two miles south of Nggalinggali, it is farthest from the island's anchorage at Tokalau and least touched by western influence. In Undu are concentrated the descendants of the land people (*kai vanua*) of Kambara, the aboriginal inhabitants of the island. The village has 120 inhabitants occupying 24 sleeping houses. Its title is Raviravimbalavu.

Undu is connected with Ndelaioloi, Tokalau, and Lomatchi by a rough, narrow path, which ascends the steep precipice above the village and leads through the bush across the island. The village garden lands are located on Ndelaioloi and on Marambo, a small uninhabited limestone island about seven miles east of the village.

The reservoir is in repair. On the northern outskirts of the village, fresh water drips from the cliff and is caught in wooden bowls. There is also a fresh water hole about 250 meters south of the village in the cliff. On the beach a mile south of Undu lies a salt water hole about 12 meters deep and 2 meters in diameter, used for fermenting food.

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Kambara

621 133 172 Northwest of Undu a few small, low house mounds, bordered by oval-shaped rings of stones, mark the site of old Undu, occupied, according to the natives, at the time of the measles epidemic (1875). The fortress of Thaukenaloa (p. 219) is situated on the edge of the limestone plateau southwest of Undu at an altitude of about 80 meters. Vakawangga (p. 220), a hamlet site, is located in the limestone cliffs about 40 meters above old Undu. The Nambewa fortress is on the precipice north of the village.

Wangava

133 621 The uninhabited island of Wangava lies about 3 miles northeast of Kambara. The passage between the two islands, called Ai Vuthuninggase, is considered the roughest in Lau. Wangava is a forested, basin-shaped mass of limestone 3.3 miles in length, 1 mile wide, and 106.7 meters in altitude at the highest point. It is surrounded by a fringing reef.

In the center of the island is a brackish lake, called Sauvanaroa, 0.75 mile wide. The lake rises and falls with the tide. The lake is used by the natives for sea turtle breeding (p. 141). Fertile soil in the interior basin is used for manioc, sweet potato, banana, papaya and maize gardens by the Naivotavota clan of Nggalinggali village on Kambara. However, only a small part of the arable land, which extends over most of the northeast end of the island, is cultivated. Part of it is planted with coconuts, but most of it is forested. Next to garden crops, the main resources of the island are hardwoods, especially greenheart, *mbau*, and ebony. A coarse quality of pandanus grows on [136] Wangava. Fish and shellfish abound, and the *kekewa*, a highly valued shellfish which flourishes in the Wangava lake, is found nowhere else in Lau.

[173] A few aged natives of Namuka say they were born on Wangava before the island was deserted. Informants believe the last village was abandoned between the coming of Christianity (about the middle of the nineteenth century) and the English flag (1874), because of illness caused perhaps by contaminated water, perhaps by evil spirits or sorcery.

The village site last occupied on Wangava is Ndaitukavondo on the sandy flat at Savena, the northeastern point of the island. Here are house sites and a Christian cemetery with about 16 graves. Eight temporary shelters at Ndaitukavondo accommodate gardeners and canoe travelers passing along the canoe route from Kambara to Namuka or Komo. The inhabitants of Wangava moved to Ndaitukavondo from Nambukua (p. 221), a village site on the ridge about 30 meters above, where many stone-flanked house foundations may be seen. Nambukua is said to have been the first Christian village on Wangava.

Two hamlet sites, Toyovu and Nawarowaro (p. 220), are located in the garden lands at the northeast end of the island, and another hamlet site,

2: Thompson E-5 (1933-1934)1940 OQ6 Lau OQ6

Lolousiusi, is on the west side of the island above Vuninawanawa on the west coast. At Vuninawanawa are two temporary shelters.

The two important fortress sites of Wangava are Korombalavu (Korong-gara) (p. 220), a fortified cave with one entrance in the central basin and another high up on the cliffs above the sea at Naivakevu on the north coast of the island; and Ndengei (p. 219), a fortified village on the highest point of the island, above Saurai on the west coast. A hamlet site called Nakumbua on the west Wangava beach below Ndengei is said to have been occupied by the inhabitants of Ndengei after the coming of Christianity.

My guide to the archaeological sites of Wangava was Rasolo of the Nai-votavota clan, Nggalinggali, reputed to be the only one who knows their location.

Namuka

Namuka is a relatively fertile, limestone island about 4 miles long and 1 mile wide. The maximum elevation of the island is 79.2 meters. The island is nearly surrounded by a barrier reef. Nawatchia, the only village on Namuka, is located on a small bay on the south coast. Fifty sleeping houses occupied by the 289 inhabitants are clustered around the ceremonial ground. Nawatchia has a Chinese store. Paths from the village lead to garden lands in the central basin and northwest across the island to the only anchorage. Fresh water is obtained from a reservoir in the village.

Namuka is geologically older than the other limestone islands and of them has the richest garden lands. The island produces an abundance of food to cover the needs of her population. The main garden products are manioc, sweet potato, and banana. Her principal resources are the paper mulberry (called *masi*, *Broussonetia papyrifera*) and other plants used in making fine types of barkcloth.

Mothe

Mothe is a circular volcanic island about 2.3 miles in diameter. It is surrounded by a barrier reef. The island rises from sandy beaches toward a central ridge, which attains a height of 179.8 meters at Ndelaimakotu hill. The hillside slopes are forest free, and fertile valleys are watered by creeks. Mothe is rich in garden lands but lacks the forest resources of the limestone islands. Besides an abundance of food, including yams and taro, as well as manioc and breadfruit, the island produces good paper mulberry.

The population of the island is concentrated at the southern end in the two villages of Nasau and Korotolu. These villages occupy adjacent sites, separated only by a narrow drainage ditch. Nasau has 260 inhabitants occupying 52 sleeping houses. Korotolu has 80 inhabitants occupying 15 sleeping houses. Nasau has a Chinese store.

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Paths connect the villages with garden lands along the coast and in the valleys. The landing opposite the passage on the east coast may be reached from the villages at either high or low tide by walking along the beach, which partially surrounds the island.

Fresh water is obtained from the island creeks and from a large reservoir in Nasau.

There are two important fortresses on Mothe: Ndelaimakotu, crowning the summit, and Ndelaimothe on a hill southwest of Ndelaimakotu.

Little information could be obtained concerning movements of the Mothe groups. According to informants. the Kamali clan has moved as follows:

> At the time of Mirakilangi, seven generations ago, Kamali was living in Ndelaimothe with the Nasau, Nggali, and Vanganduku clans. Mirakilangi moved with the Kamali group to the hamlet, Tokanga, on the beach. At the time of Mbatchinimalungu, five generations ago, the Valelevu subclan lived at Wanggathiri and the Vunikavika subclan at Kauyawa, two hamlets on Kamali land in west Mothe. The two groups moved to the hamlet, Nggali. At the time of Siasi, three generations ago, they moved to the present site of Nasau. In the last generation Korotolu people have moved from Nggali to Vanganduku, thence to Leva, and thence to Korotolu, the present village site. Natives say that each move was made because of a hurricane or a tidal wave.

Fulanga

Fulanga is a horseshoe-shaped limestone island 5 miles long and about 3.5 miles wide, surrounded by a fringing reef. A ridge up to 79.2 meters high forms the backbone of the island. The island itself almost encircles a large, central lagoon, rich in fish and dotted with 300 to 400 mushroom-shaped islets.

Fulanga is a "famine" island producing insufficient food to cover the needs of the population. The soil is poor, and practically the only garden products are manioc and breadfruit. Fulanga raises a relatively large number of chickens. Her main resources are hardwoods, fish, shellfish, and pandanus of good quality.

Salia, the narrow, shallow passage to the central lagoon, is difficult even for small craft. The only anchorage is at Yawalevu on the south shore of the central lagoon. A path from Yawalevu runs southwestward over the island ridge through Muanaithake, one of the three villages on Fulanga. Muanaithake is located in an indentation on the south coast of the island. The same path connects Muanaithake with Muanaira village on the beach half a mile westward. At Muanaira the path turns northward to Vatuolo, a canoe landing at the southwest corner of the central lagoon. From Vatuolo it skirts the central lagoon through the bush to Naivindamu village on the northwest shore of the lagoon. Paths also connect Muanaithake with its meager garden lands, most of which lie east of the village on the southern horn of the island.

The large central lagoon provides Fulanga with the best fishing grounds

2: Thompson E-5 (1933-1934)1940 OQ6 Lau OQ6

in southern Lau. The islands in the main lagoon, used mostly for fishing, belong to Nasava and Vandravandra clans and to Muanaira and Naivindamu villages. The central lagoon is divided into three sections and each village owns the section adjacent to it. Each village holds exclusive fishing rights over its section which cannot be used by members of other villages without permission. Muanaithake's fishing grounds extend from Salia to Ndranukatava and from Nawautu to Matainiunga. Muanaira's fishing grounds include Yanuyanualou, Narakuraku to Nanggere to Salia. Naivindamu's include Lanaki to the reef, Yakaulau, Nggilanggilalevu and Nggilanggilalailai.

I estimated the population of Fulanga to be about 350. According to census reports, the population was 310 in 1921 (4) and 390 in 1936 (5).

MUANAITHAKE

Muanaithake is the largest and the ranking village on Fulanga. The census of 1936 (5) records that Muanaithake had 23 sleeping houses. The number in 1934 was not recorded. The sleeping houses are set in rows on either side of a wide path. The house mound of the chief of Fulanga faces the ceremonial ground in the center of the village. Thick, high house posts are still standing on this site, but the chief, who is old and feeble, lives in a smaller house behind it. Inhabitants say that the title of the village is Lomatchi, but the inhabitants of Muanaira also claim this title for their village.

When mosquitoes become troublesome in Muanaithake during the rainy season, most of the inhabitants move to Taluma, a windswept islet at the southeast end of the central lagoon, or to the islands of Mbaumbau and Nukuveilauvuraki. They sleep in temporary huts and leave the islets only to procure food and to attend ceremonies in the village.

Informants of Vunikoro, the ranking clan on Fulanga, say the clan formerly lived at the hamlet Naiunduundu near Muanaithake. The title of the clan is Naiunduundu. They used the fortress, Nauluvatu, on the hill above Muanaithake and were the first settlers at Muanaithake village.

MUANAIRA

Set in garden lands on the beach west of Muanaithake is Muanaira, a small village of 16 sleeping houses clustered about a central ceremonial ground.

The people of the village say that they lived at one time in Nauluvatu, the fortress on the cliffs above Muanaithake, and that from there they separated and formed the hamlets Narara, Nggilo, and Tawali, situated in the garden land between Muanaira and Muanaithake.

NAIVINDAMU

Naivindamu, a little village of 16 sleeping houses on the central lagoon, is one of the most isolated villages in Lau. The garden lands, behind and on

2: Thompson E-5 (1933-1934)1940 OQ6 Lau OQ6

621 ●133 both sides of the village, are very poor. The men are expert fishers and the best sailors of Fulanga, an island noted for skill in navigation.

At Naivindamu the high tide mark almost reaches the kitchen huts along the beach. Between the months of January and March, when mosquitoes are troublesome in the village, the people sleep in temporary shelters on Matafeke, an island in the central lagoon swept by the southeast trades. Four huts have been built on the table top of the island, which is not more than 15 meters in diameter. Matafeke is about 400 meters from Naivindamu and is reached by canoe and scaled at low tide by means of a wooden stepladder.

In the garden land on the lagoon shore about 1,200 meters south of Naivindamu lies the old hamlet site of Toka below the hill fortress of Tchinambua. The Naivindamu people say that both sites were occupied by their ancestors who moved from Toka to the present site. When Williams (*27*, vol. 2, p. 122), the first European missionary to visit Fulanga, came to the island in June 1842, he found four settlements: Toka, Naivindamu, Muanaira, and Muanaithake. The locations of the settlements are not stated, but it is probable that the inhabitants of Toka have moved within the last century to the southwest end of Naivindamu where they have formed the clan hamlet of Toka. Members of the Toka clan know little of their pedigrees.

Ongea

The two main islands in the Ongea group are Ongea Levu, about 4 by 2 miles, and Ongea Ndriki, 1 by 1.8 miles. The maximum elevation of Ongea Levu is 91.4 meters. A barrier reef, encircling both limestone islands, encloses a deep lagoon which affords the best anchorage in southern Lau. Hence Ongea is visited by ships more frequently than the other southern islands.

The only village in the Ongea group is Naithulaianga, situated on an inlet at the southern end of Ongea Levu. No census was taken on Ongea, but the village headman said that the population of the village was 102. There are 25 sleeping houses in the village. Naithulaianga is connected with its garden lands by paths running northward into the interior of Ongea Levu. There are also garden lands and temporary huts on Ongea Ndriki. Though the Ongea soil is not rich it is better than that of Fulanga and the food problem is not so acute. The crops are manioc, sweet potatoes, and bananas. The principal resources of the island are hardwoods.

Naithulaianga is built on the shore of the lagoon. The high tide line is only a meter or two from the kitchen huts, two of which are protected by a limestone retaining wall 75 cm. high. Many of the houses in the village stand upon stone-faced mounds from 75 cm. to 1.5 meters high. According to the natives the village is flooded during hurricanes.

[317] Fresh water is obtained from a concrete reservoir.

3: Thompson E-5 (1933-1934) 1940 OQ6 Lau OQ6
Kambara

CHAPTER I

A HAZARDOUS WORLD

KAMBARA, A FAMINE ISLE

A mate na rawarawa 539
Me mbula—na ka ni thava?
A mate na thenggu.

Death is easy.
Of what use is life?
To die is rest.

Fijian proverb.

SILHOUETTED against the sky, Kambara presents the 133
long, low outline of a basin-shaped limestone island, about 4½ miles long by 3½ miles wide. It is broken at the north-west by a volcanic hill. From the summit of this hill, one sees a world of sky, sea and forest. Below lies the dark green ghoulish jungle, stretching to the edge of the island. It is encircled by a turquoise lagoon, which is framed with a pink and purple coral reef fringed by dazzling white surf. Beyond lies the deep blue sea.

Here and there along the shore are sandy flats covered with 133
coconut groves and brush, and on these flats are situated four 361
villages: Tokalau, Lomatchi, Undu and Tanggu (officially [311]
designated Nggalinggali). Tokalau and Lomatchi, half-a-mile apart on the west side of the island, communicate easily along the beach on foot, as do Tanggu and Undu, a mile apart on the east side. Contact is more difficult between the two sides of the island, separated by the rough and thickly forested limestone basin. It can be effected through the bush on two [487]
rough narrow trails, or around the island by canoe, and also at low tide on foot. The two sides of the island are separated not only by physical barriers but also by invisible ones, for [776]
the jungle and lagoon are peopled with spirits, frequently hostile and malicious.

3: Thompson E-5 (1933-1934) 1940 OQ6 Lau OQ6
Kambara

133 the jungle and lagoon are peopled with spirits, frequently
361 hostile and malicious. Hence the two pairs of villages are isolated from each other. In the past they were frequently
621 at war. Tokalau has long been the ranking village on the
178 west side and Tanggu ranking on the east. Today their
578 antagonism is expressed in frequent quarrels and rivalry for wealth and social prestige. These villages are not old. They
[712] are composed of aggregations of hamlets formerly located inland and protected by hill fortresses. In the middle of the nineteenth century, when the elimination of warfare due to the introduction of Christianity made protection unnecessary, several adjacent hamlets formed a village which retained the traditional jealousies and feuds of its constituents.

131 On a clear day seventeen islands are visible from the highest
133 point on Kambara, 470 feet above the sea. One can even
823 discern the reef of uninhabited Wangava, home of the spirits
776 of illness, about three miles to the northeast. Wangava is a limestone island, rich in timber, turtles, shellfish, and garden land. It belongs to the village of Tanggu on Kambara. To the southeast, about seven miles away, is the little uninhabited island of Marambo, home of the "windwomen", twin spirits who assume the form of beautiful maidens to disturb men in their sleep. Marambo was formed when the devil dropped the hearth stone from his canoe through the opening for the steering paddle. Here the men of Undu plant gardens and fish for lobster. And away to the northwest, a speck on the
131 horizon, is another Kambaran possession—the tiny uninhabited
133 island of Tavunasithi, owned by Tokalau. The nearest inhabited islands are Kambara's fertile colonies to the northwest,[1] Namuka of limestone and Komo of volcanic formation. The
[648] people of Kambara apparently acquired these islands by destroying the early inhabitants in warfare. According to the
[173] genealogies, Namuka was settled by colonists from the east side of Kambara, and Komo by colonists from the west side. Komo lies on the canoe route from Kambara to the large

[1] [Northeast according to map on page xxvi, category 116.—Analyst]

3: Thompson E-5 (1933-1934) 1940 OQ6 Lau OQ6
Kambara

volcanic island of Lakemba, home of the high chief of Lau, far out of sight to the north. Visible between Komo and Namuka is the fertile volcanic island of Mothe, the point of departure of canoes for the Tongan archipelago, 400 miles to the east. Visible to the east is the uninhabited Yangasa cluster of islets, and to the southeast Fulanga and Ongea, all of forested limestone formation. Out of sight still farther to the south lie Vatoa and Ono, the southernmost islands in the Lau group.

Kambarans have relatives on most of these islands, as well as on the Moala group to the west, and in the Fijian capital city of Suva. These kinship ties demark the boundaries of their physical world. Only within the limits of this world, among their relatives, are they at home.

Kambara is called the "cave of wealth"[1] on account of her forests of hardwood. The most valued hardwood is greenheart of India (*Intsia bijuga*) used for making sailing canoes and other woodwork. Although the finest greenheart is found on Kambara, it grows well also on the neighboring islands of Wangava, Fulanga, and Ongea, but nowhere else in Fiji or Tonga. Based upon this natural monopoly, a famous woodcraft industry has developed in southern Lau. The group formerly supplied Fiji and Tonga with fast and powerful large double war canoes, and still provides many parts of Fiji with picturesque mat-sailed canoes, used extensively on inter-island voyages, and with shining carved wooden bowls, gongs and headrests.

In spite of forest resources, Kambara, Fulanga and Ongea are known in Fiji as "famine isles" on account of the dearth of arable land. The limestone base of these three islands, and of Wangava and Yangasa as well, has not decomposed sufficiently to form good garden land, and pockets of arable soil are scarce and shallow. Gardening, the usual basis of subsistence in Lau, must be supplemented in the famine group

[1] "Nggara-ni-tambua": literally whale's tooth cave, for the ivory tooth of the sperm whale represents the highest value in Lau.

3: Thompson E-5 (1933-1934) 1940 OQ6 Lau OQ6
Kambara

stream of immigrants into Polynesia must have settled in eastern Fiji. 174

The islands of the Pacific may be divided into two groups: those of continental formation lying within the boundaries of the great submarine shelf which extends from Asia eastward as far as Fiji and New Zealand, and those of insular formation west of this boundary. The Lau islands extend north and south along the eastern edge of the shelf. The culture areas of Melanesia, Micronesia,[8] and Indonesia[9] lie east of this line, while that of Polynesia lies to the west. The island groups to the west, that is those on the submarine shelf, are relatively numerous and compact. To the east, however, island groups are less frequent and the distances are greater between them. This fact has been of utmost importance in the peopling of Oceania, for whereas the voyage as far as Fiji can be made almost continuously in sight of land, beyond Fiji great expanses of open sea, frequently over two thousand miles across, stretch between the Polynesian islands. Only the ablest and most daring navigators could sail these seas by canoe. 133 [101]

The aboriginal inhabitants of Lau were a dark, coarse featured, Melanesian type called the "land people" (*kai vanua*). We do not know how early they settled in Lau. They probably comprised the easternmost expansion of the aboriginal inhabitants of Fiji, who survive today in the mountains of Viti Levu. The "land people" were fishermen and collectors of roots, fruit, and leaves in the jungle. Probably they also cultivated gardens on the fertile volcanic islands, but were prevented from gardening to any extent on the limestone islands because they lacked food plants which would grow well in the shallow soil. They had a simple 174 [142]

[8] The term Micronesia is used in this study primarily to denote the Oceanic culture area north of Melanesia. It includes the Marshalls and Gilberts, the Carolines and the Mariannas.

[9] The term Indonesia is used in this study primarily to denote the Oceanic culture area between Melanesia and the eastern Asiatic mainland. It includes the Malay archipelago.

[Text continues on page 21.—Analyst]

5: Thompson E-5 (1933-1934)1949 OQ6 Lau OQ6

Reprinted from AMERICAN ANTHROPOLOGIST, Vol. 51, No. 2
April-June, 1949

THE RELATIONS OF MEN, ANIMALS, AND PLANTS IN AN ISLAND COMMUNITY (FIJI)[1]

By LAURA THOMPSON

121 THE problem of the ecological base of cultural phenomena is undergoing reconsideration by anthropologists from various points of view.[2] As part of this trend the present paper attempts to relate and interpret, from a total ecological viewpoint,[3] field findings of a geologist, a botanist, a naturalist and an anthropologist on an isolated community in Fiji.[4] Although the available data are limited, particularly as regards the botanical and zoological aspects of the problem, they seem to be sufficient to meet the needs of the present effort, which is designed to test the usefulness of a total ecological approach.

131 The community selected for study is located at the southern end of the 133 Lau or Eastern Archipelago, a north-south belt of 100 small islands, 30 of 101 which are inhabited. It consists of an isolated group of six inhabited islands and their uninhabited satellites.[5] Three inhabited islands, namely Fulanga, Ongea and Namuka, as well as all of the uninhabited ones, are composed of limestone. The other inhabited islands, namely Mothe, Komo and Kambara, are formed either wholly or in part of volcanic rocks.

133 No two islands are exactly alike in structure or mode of origin but in general the volcanic islands (e.g., Mothe) are eroded to rounded, reed-covered hills and gentle slopes or low, rocky promontories. They have miniature drainage systems which originate at high points near the central interior and form small streams with dentritic patterns. Their valleys are lined with relatively [134 241] deep, rich soil which supports a variety of vegetation including yams (*Dioscorea*) and other garden crops.[6]

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[1] I take this opportunity to thank Edwin H. Bryan, Jr., John Collier, Harry S. Ladd, Emma Reh, Ward Shepard, Albert C. Smith and Margaret Titcomb for help or comments on the manuscript.

[2] *See*, for example, Gayton, 1946; Hallowell, 1949.

[3] The term "total ecological viewpoint" is used to include the relations of organic species, including man, to one another in environmental context.

[4] The field projects on which this paper is based were unrelated and none of the researchers collected or analyzed their material systematically within a total ecological frame of reference. Edwin H. Bryan, Jr., naturalist, made a survey of the Lau group in 1924. Dr. Albert C. Smith, taxonomist, collected plants in 1934. Dr. Harry S. Ladd, geologist, studied the geology of Lau in 1934; and I investigated a culture-historical and culture contact problem in 1933–1934. Unless otherwise specified, conditions and institutions are described as of 1933–1934.

[5] The inhabited islands are Mothe, Komo, Namuka, Kambara, Fulanga and Ongea. The uninhabited islands are Karoni, Tavunasithi, Wangava, Marambo, Yangasa Levu, Navutu-i-loma, Navutu-i-ra, Yuvutha and Ongea Ndriki.

[6] Bryan (MSS.) states: "The dominant plant over much of the volcanic islands is a plume grass, *Eulalia japonica*, called *ngasau* by the natives. There are also several species of wiry ferns, including the "staghorn"; a low scrub, made up of about a half a dozen widespread species of

[pp 1-252 not processed]

5: Thompson E-5 (1933-1934)1949 OQ6 Lau OQ6

133 On the other hand, the limestone islands (e.g., Fulanga) have cliffs and
137 forested low plateaus, which tend to erode into basins whose sharp-crested rims drop steeply to the sea. They have no valleys or streams, all the rainfall sinking underground and reaching the sea by an intricate system of subterranean caverns. Except in Namuka, where the soil is relatively deep, only a
[134] thin layer of rather poor topsoil occurs in pockets in the interior basins. Such limestone soil supports a distinctive flora. Useful hardwoods, such as the greenheart of India (*Intsia bijuga*), *mbau* (*Pittosprum brackenridgei*) and *makota* (*Dysoxylum richii*), as well as other jungle plants which are absent or scarce on the volcanics, flourish on the limestones of southern Lau. However, yams do not grow well in this type of soil. Apparently these islands had no horticulture before manioc and sweet potato (*Ipomoea batatas*) found their way to Lau in historic times.[7]

In sum, good garden land and food are generally limited on the limestone islands but plentiful on the volcanics, while forest products are scarce on the volcanics but abundant on the limestones. Thus, the resources of the two geolog-
[438] ical types complement each other, the fifteen islands forming a naturally balanced community or self-sufficient native trade area.

13 The foundations of this ecological arrangement extend far back in the geological history of the region. On the basis of paleogeological evidence, Ladd and Hoffmeister[8] infer that organic life in the island community under consideration began during the Lower Miocene before the Lau group had emerged above sea level, and it played a major part in the formation of the various islands and in laying the foundations for their present ecological structures. As soon as the islands projected above the level of the sea and the processes of erosion began to develop topsoil, we assume that the fundamental biotics of each island began to develop—limestone biotics on the limestones and volcanic biotics on the volcanics.

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shrubs and stunted trees; and scattered *Pandanus* and *Casuarina*. The dominant littoral species are: *ndilo* (*Calophyllum inophyllum*), *vutu* (*Barringtonia speciosa*), *evu* (*Tournefortia argentea*), *evueve* (*Hernandia peltata*), *nawanawa* (*Cordia subcordata*), *tatang-ngia* (*Acacia lauriflora*), *vevendu* (*Scaevola koenigii*), *tavola* (*Terminalia littoralis*), *ndrala* (*Erythrina indica*), etc. Besides these there are the usual *Pandanus*, numerous vines and groves of coconut palms."

[7] According to Bryan (MSS.): "All the limestone islands . . . support one type of forest. It is made up throughout the group of the same fifty or so species of trees and tall shrubs, with an undergrowth of *Piper* (*wangawa*), bird's eye pepper (*rokete*), ferns, herbs and several vines. The luxuriance alone depends upon the size and elevation of the island. There is an interesting, rapid and progressive increase in the number of species and the height of growth, from the nearly bare rocks, such as Latei Viti and Bacon Island with but two or three species of prostrate herbs, to the splendid forests of Kambara, Mango, etc. First to appear after the herbs and vines are low, stunted trees of such widespread species as *Hernandia peltata*, *Tournefortia argentea*, and a *Ficus* with orange fruit commonly eaten by pigeons. A few of the small islands have native palms in considerable numbers. *Pandanus* and *Casuarina* appear early in the scale."

[8] Ladd and Hoffmeister, 1945; Ladd, 1934.

9: Bryan

Lau OQ6

131, 133, 136, 137

/Information in text on the location, topography, geology, fauna and flora of each of the forty islands in the Lau group will be found in category 13./

9: Bryan N-5 (1924) 1924 OQ6 Lau OQ6

PRELIMINARY REPORT ON THE LAU GROUP, FIJI.

by E. H. Bryan, Jr.

(Whitney South Sea Bird Expedition, July to October, 1924.)

Introduction.

101 [131] The Lau or Eastern Group, of Fiji, consists of about 40 islands or clusters of islets and numerous reefs, extending from S.16° 40' to S. 19° 15' and from 178° 20' W. to 179° 30' W. It constitutes [648] a frontier between Fiji and Tonga, and has in past years been the 144 scene of numerous invasions from the latter group. On several of the islands the Tongan strain is quite noticeable. The majority of 231 the islands are inhabited by an industrious people, who live on 241 262 fish, pigs, fowl, and yams, sweet potatoes, taro, and manioc and 245 bananas, which they raise extensively for local consumption. The main product of the islands is copra which is dried in quantity from the extensive groves of coconut palms. Many of the men are 322 skillful carvers, making attractive yaqona (yang-gona) bowls, combs, clubs, wooden pillows, and canoes. The women weave mats from the 285 leaves of the Pandanus, and beat out the sap wood of the paper 287 824 mulberry (Broussonetia papyrifera) into a bark cloth called masi, the process being called samusamu.

● 133 There are three types of islands in Lau, as follows: limestone, volcanic, and a combination of both. Portions of some of the islands are sandstone, but no island is completely made up of this material. The types are so distinctive that they may be identified at a glance.

The limestone islands are exceedingly rough. The material is upraised coral reef. Their surface has been eroded into sharp ridges or hummocks separating deep pot-holes with jagged-faces. The coast line includes deep bays, rugged cliffs and isolated rocks; all typically under-cut at the water's edge. This gives the smaller

133 islets and rocks a characteristic "mushroom" shape. The surface,
[137] even on the small low islands, is densely covered with forest, and
is comparatively moist. The indentations are choked with mangrove
swamps. The highland is marginal with the center a flat or basin.

133 In contrast to this, the islands of volcanic material are
137 smoother with rounded ridges and peaks. The beaches are predominately
sandy with small areas of dark basalt at the points. The slopes above
the everpresent fringe of cocomut palms and cosmopolitan littoral trees
are generally grassy with low scrub and scattered Pandanus and
Casuarina trees. Although the slopes are dry there is usually a small
stream in each valley. The highest elevation is in general toward the
center. This summit may bear a tuft of trees, if of sufficient
elevation (and also when not cleared off by the natives), but these
are simply lowland species which have crept up the valleys.

133 Most of the larger islands, however, are a mixture of limestone
and volcanic material. This typically takes the form of a ring of
limestone hills enclosing a basin of volcanic material. Vanua Mbalavu
is made up of a chain of volcanic hills tapering off into limestone
at both ends. On some of the islands, such as Katafanga, the transition
between the two is as sharp as if cut by a knife.

Plant Life.

137 The vegetation depends primarily on the geological formation.
All the limestone islands and the limestone portions of the mixed
islands support one type of forest. It is made up throughout the
group of the same fifty or so species of trees and ~~shrubs~~ tall shrubs,
with an undergrowth of Piper (wangawa), bird's eye pepper (rokete),
ferns, herbs and several vines. The luxurience alone depends upon
the size ~~of the~~ and elevation of the island. There is an interesting
rapid and progressive increase in the number of species and the height
of growth, from the nearly bare rocks, such as Latei Viti and Bacon
Island, with but two or three species of prostrate herbs, to the

7 [i.e. limestone islands--analyst]

[p.2]

136 A careful record of the bird life on each of the islands was kept by Mr. Jose' G. Correia, the assistant Ornathologist. According to his notes the principal birds throughout the Lau Group are as follows:

Land Birds		Water Birds
Large Hawk		Herons, blue and white.
Small Hawk		Heron, small gray.
Pigeon, common Suva		Tern, white
Pigeon, common Samoan		Tern, sooty
Pigeon, black		Plover, Golden
Doves, common		Tatler
Dove, yellow		Lesser Frigate
Dove, ground		Platus Booby
Gallinule		Booby, red-footed
Parraquit		Turnstone, ruddy
Brown-eye		Tropic-bird, yellow bill
Shrike		
Warbler		
Broadbill		
Honey-eater	Barn owl	
Swallow	Duck (Teal)	
Swift	Wild chicken.	
Fantail, gray		
Fantail, brown		
Kingfisher		
Yellow-eye		
Yellow-belly		
Flycatcher, sooty		
Red cap		
Rail		
Cuckoo		

●133 Most of the islands are surrounded by a barrier reef, which in many cases extends several miles off shore. The majority of the islands also have fringing reefs. There are also a number of reefs, some of which completely enclose lagoons, containing no elevated land. These supply the marine biologist with a rich collecting ground. But no opportunity was allowed on this hasty land survey to study marine life.

128 In the following summary of the individual islands, the subjects will be discussed in the following order:- 1, location, 2, dimensions, 3, topography and surface, 4, harbors, anchorages and landing places, 5, water, 6, special notes on vegetation and fauna, 7, inhabitants, 8, cultivation and other occupations, 9, historic, 10, prehistoric.

A sketch map, corrected in the field, is furnished of each island.

[p. 4]

113

SUMMARY OF W. G. FOYE'S GEOLOGICAL OBSERVATIONS ON LAU.

(Proc.American Acad.Arts & Sciences, 54:1, pp.43-44, 1918.)

● 133

1. The Lau islands are underlain by volcanics, formed during the second period of andesite eruptivity, then maturely eroded, and finally submerged.
2. During long submergence, coralliferous limestones were laid down unconformably on these volcanic rocks.
3. A later uplift elevated the coralliferous limestones above sea-level.
4. During a later basaltic period of volcanic eruptivity, olivine andesites or basalts intruded the elevated limestones.
5. With succeeding erosion a large amount of the elevated limestones disappeared, largely owing to atmospheric solution.
6. Most of the islands show a recent submergence.

According as the various islands have passed through all, or only a part, of these stages, the Lau islands may be classified as follows:-

I. Islands depressed and covered with limestone and later uplifted and intruded or covered by volcanic rocks of the second period.
  A. Islands depressed so deeply that the tops of the andesite hills of the first period were covered by limestone.
    1. Islands with limestone partly or wholly eroded from the summits of the andesite. VANUA MBALAVU, SUSUI.
    2. Islands with volcanic rocks of the first period still covered with limestone. KAMBARA.
  B. Islands whose tops were never covered by limestone. KANDAVU.

II. Islands depressed and covered with limestone and later uplifted but not affected by the second period of volcanic eruptivity.
  A. Islands depressed so deeply that the tops of the andesitic hills were covered with limestone.
    1. Islands with limestones eroded partly or wholly from the summits of the andesites. Malatta, Avea, Thikombia-i-lau, Tuvutha'.
    2. Islands with volcanic rocks still covered with limestone. VEKAI, FULANGA, ONGEA, WANGAVA, VATOA.
  B. Islands whose tops were never covered by limestone. LAKEMBA, ONO-I-LAU.

III. Volcanic islands of the second volcanic period built on platforms composed of coralliferous limestone overlying depressed hills of the first volcanic period. MUNIA, KANATHEA, ONO, MBENGHA.

SIMPLE CLASSIFICATION OF THE LAU ISLANDS VISITED BY FOYE.

1. Islands composed of both limestone and volcanic rocks:

VANUA MBALAVU	MALATTA	THIKOMBIA-I-LAU
SUSUI	AVEA	TUVUTHA'
LAKEMBA	ONO-I-LAU	KANDAVU [1]
	KAMBARA	

2. Islands composed of limestones alone: VEKAI, FULANGA, ONGEA, WANGAVA, VATOA.

3. Islands composed of volcanic rocks only: MUNIA, KANATHEA. (Ono-i-Kandavu and Mbengha [not in Lau])

[1] [This island is not in Lau--Analyst]

[p. 6]

●133

SIMPLE GEOLOGIC CLASSIFICATION OF ALL THE LAU ISLANDS, FIJI.

(As observed by E.H.Bryan,Jr., following the arrangement suggested by W.G.Foye, Proc.Am.Acad.A.&.Sci.54:1,p.44).

1. ISLANDS COMPOSED OF LIMESTONE ALONE:

Ongea	Marambo	Bacon	Kimbombo (1 of 3)
Fulanga /(4)	Wangava	Latei Viti	Kaimba
Yangasa Cluster	Tavunasithi	Latei Tonga	Vatu Vara (?)
Namuka-i-Lau	Aiwa (2)	Vekai	Vatoa (not seen personally)
Karoni	Vanua Masi	Sovu (3)	

2. ISLANDS COMPOSED OF BOTH LIMESTONE AND VOLCANIC ROCK:

Oneata	Thithia	Yathata
Kambara	Vanua Mbalavu	Ono-i-Lau (not seen personally)
Lakemba	Avea	
Katafanga	Malata	
Tuvutha	Susui	
Naisu	Thikombia-i-Lau	
Vanua Vatu	Naitaumba	
Mango		

3. ISLANDS COMPOSED OF VOLCANIC MATERIAL ONLY:

Mothe	Kimbombo (2 of the 3)	
Komo	Clorua	◊ These two are composed of bedded tuff.
Kanathea		
Munia		

4. FLAT SAND ISLANDS (No elevated limestone or volcanic material):

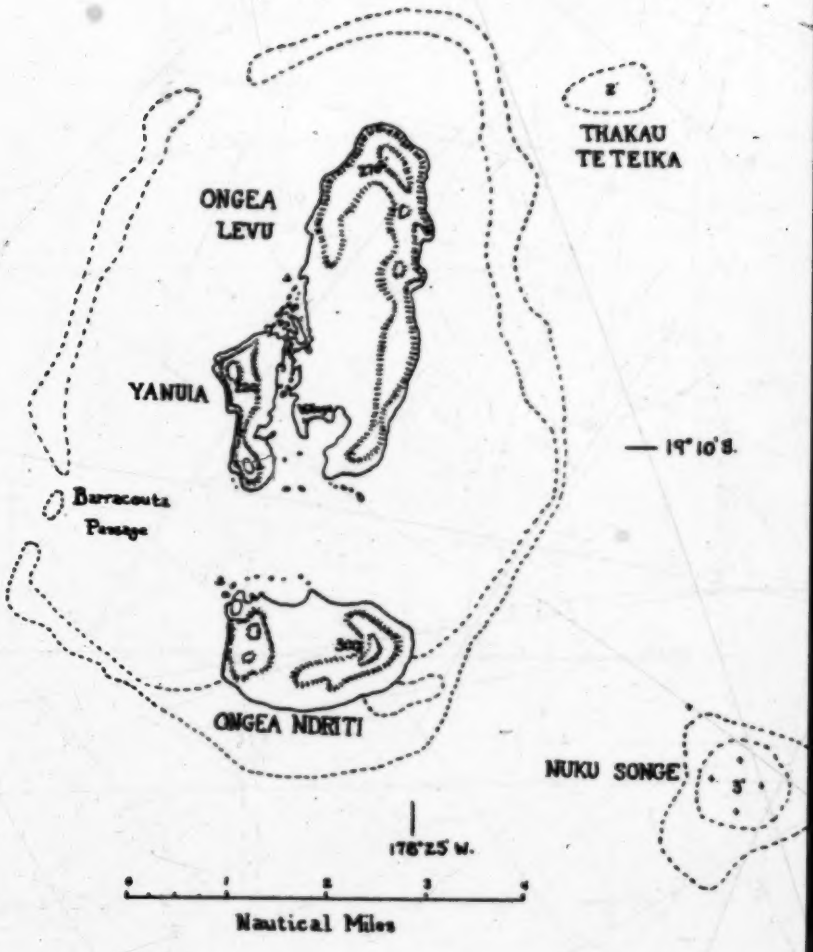
Naiambo
Yarowa
Wailangilala
Nukutolu (3)

(The number of islands making up a cluster or group is indicated by the number in parenthesis).

[p.7]

ONGEA ISLANDS

102
133
361
131
103



[p. 10]

9: Bryan N-5 (1924) 1924 OQ6 Lau OQ6

Unmapped Channel Between
Ongea Levu & Yanuia.

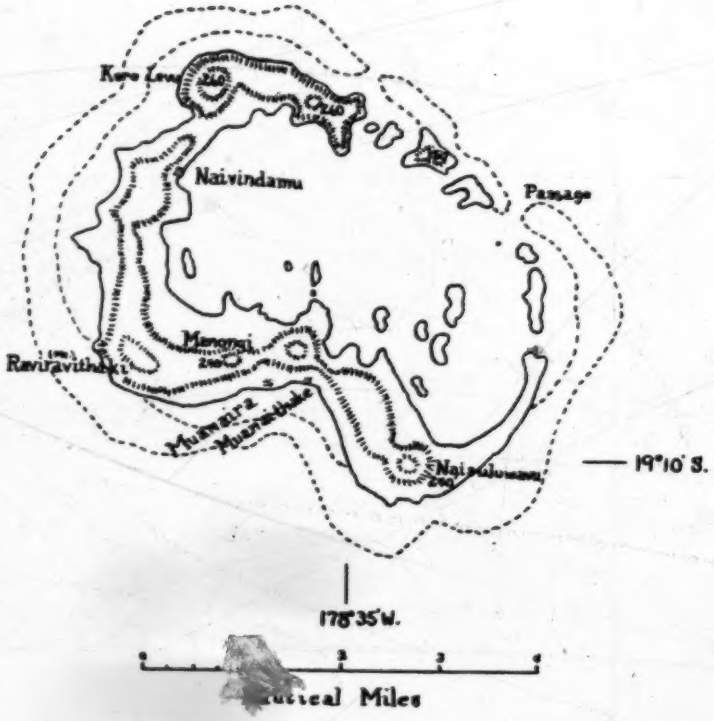
[ONGEA ISLANDS]

102
●133
361

[p. 11]

FULANGA I.

102
131
●133
103
361

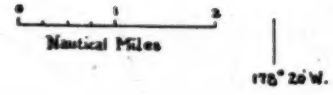


[p. 14]

9: Bryan N-5 (1924) 1924 OQ6 Lau OQ6

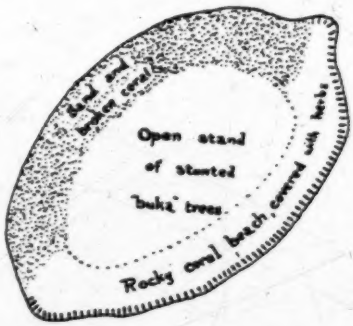
HAIAMBO I.

102
●133
131



19° 00' S.

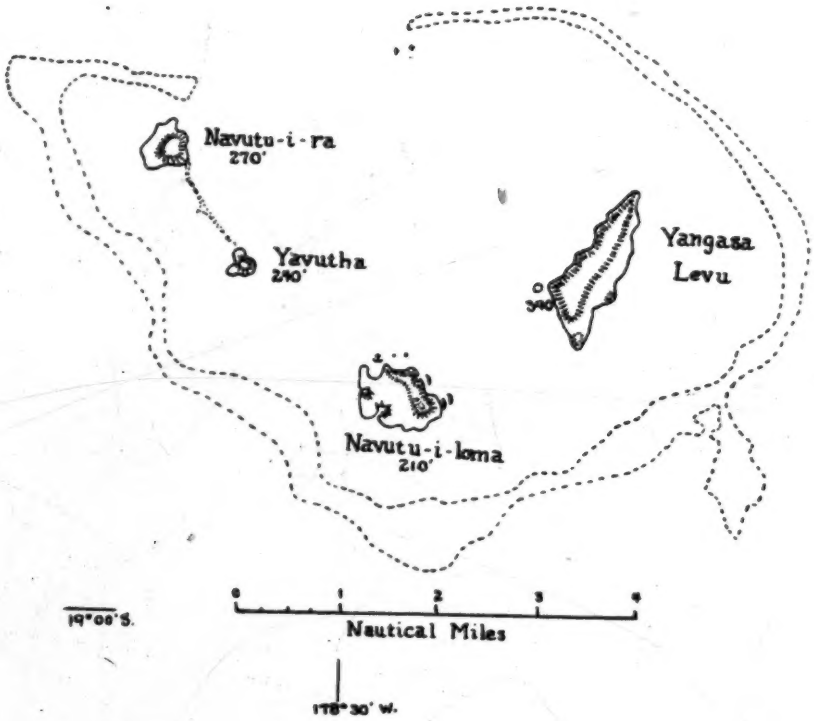
Elev. 25 to 30 ft. to tree tops.



[p. 17]

YANGASA CLUSTER.

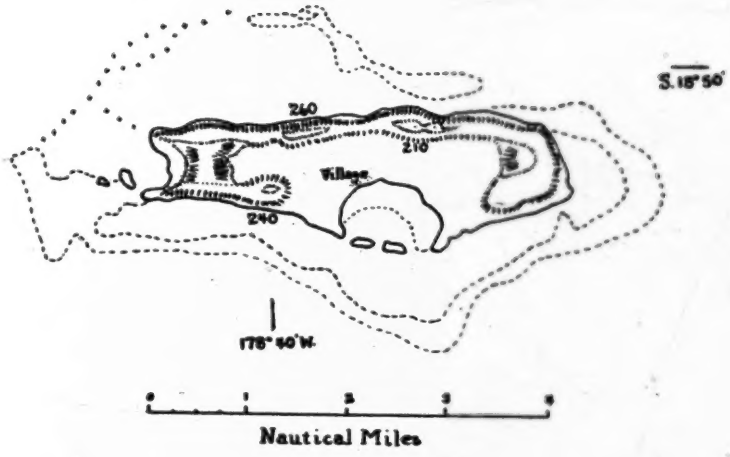
102
131
●133
103



[p. 19]

NAMUKA-I-LAU

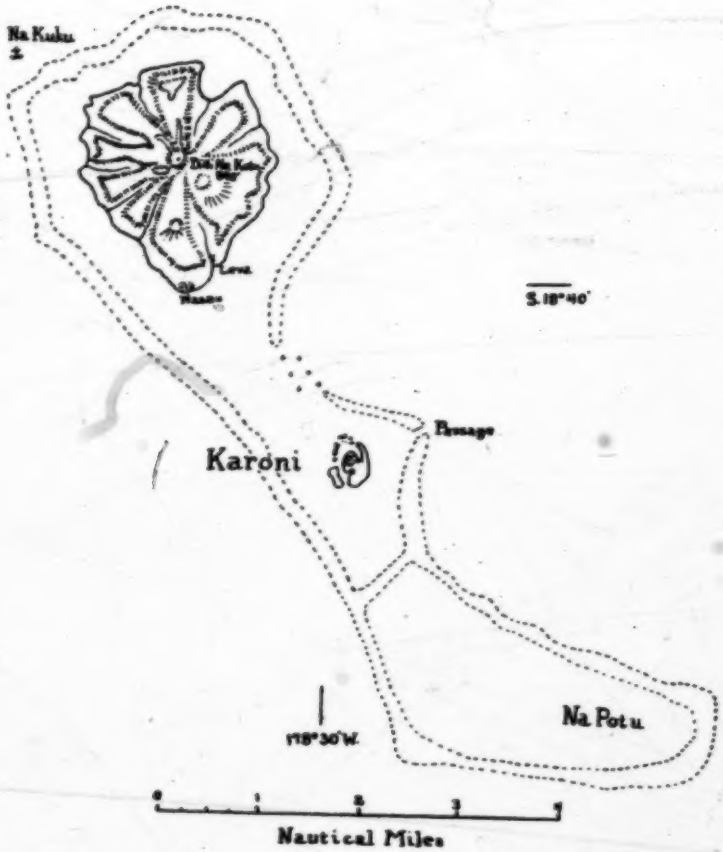
102
133
131
361



[p. 22]

MOTHE & KARONI

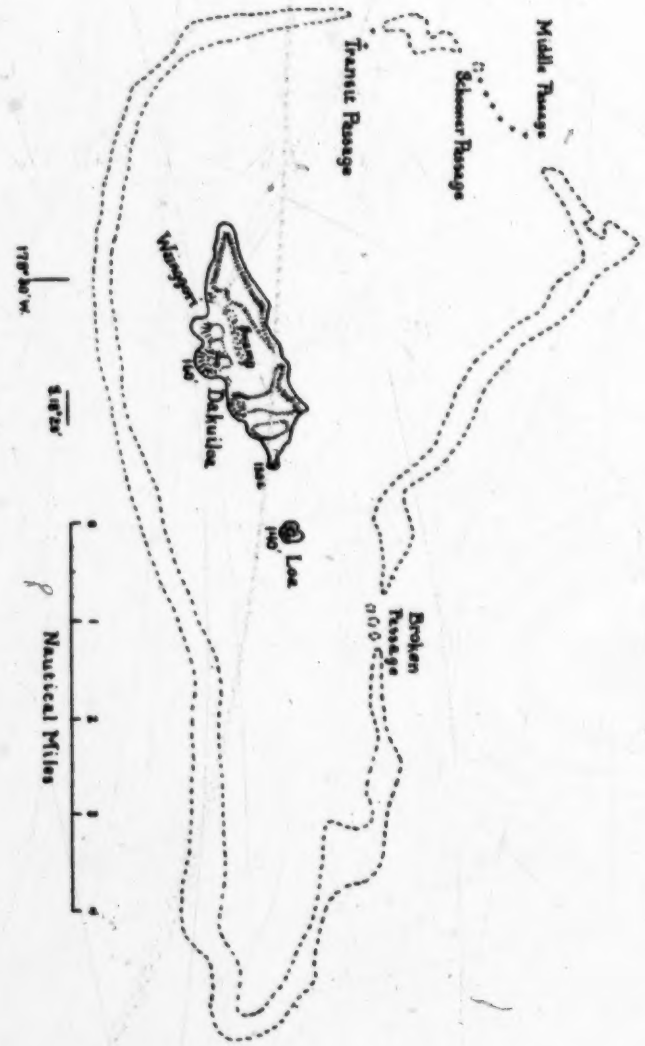
102
103
131
●133
361



[p.24]

OHATA I.

102
103
●133.
361
131



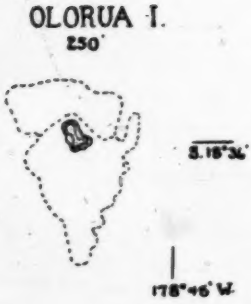
[p.27]

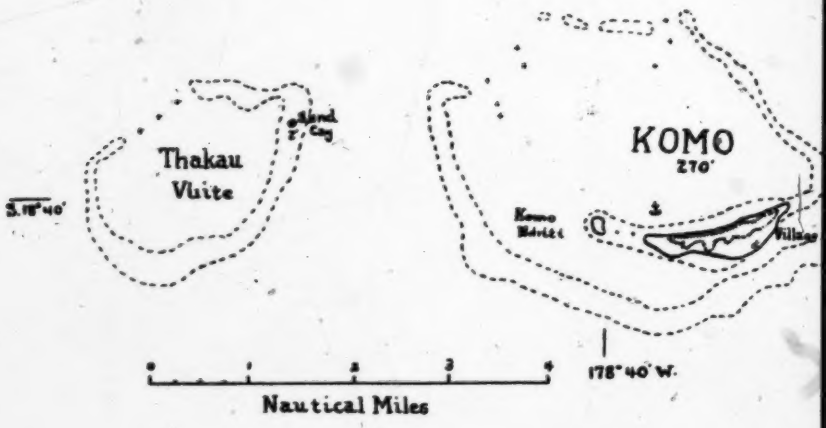
9: Bryan N-5 (1924) 1924 OQ6 Lau OQ6

OLOMUA & KOMO

Detail of Olorua.

102
103
131
133
361



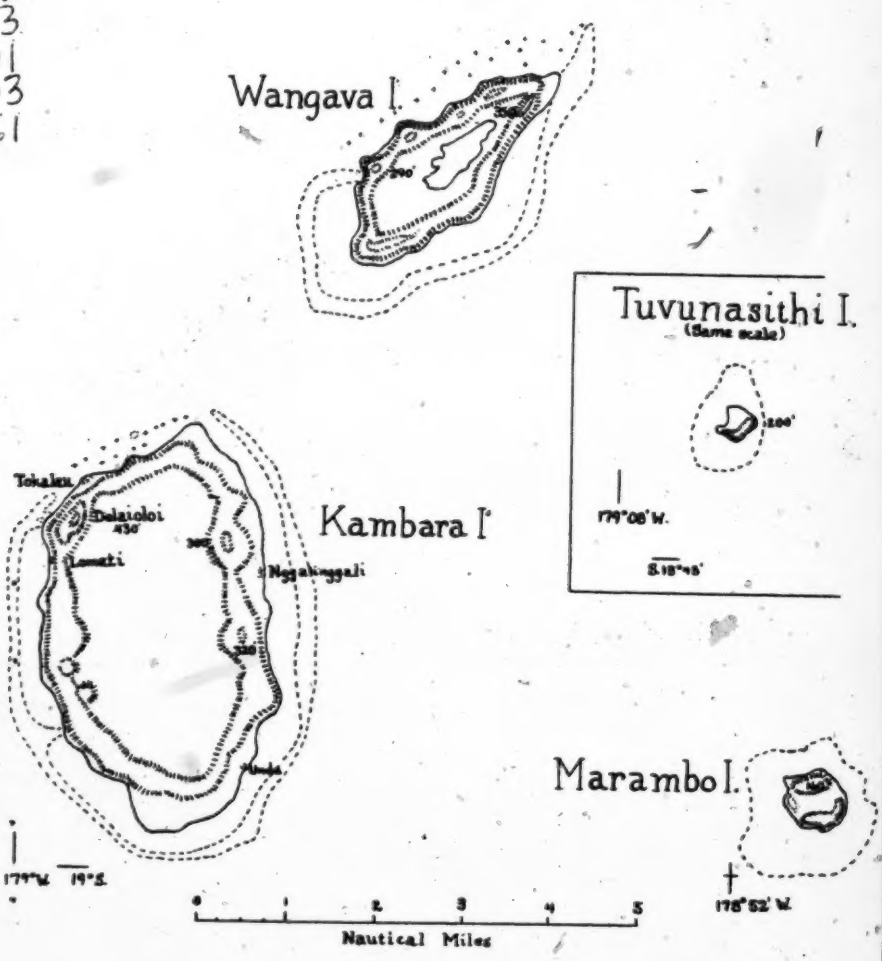


[p. 30]

9: Bryan N-5 (1924) 1924 OQ6 Lau OQ6

KAMBARA, MARAMBO, WANGAVA
and TUVUNASITHI.

102
103
131
133
361

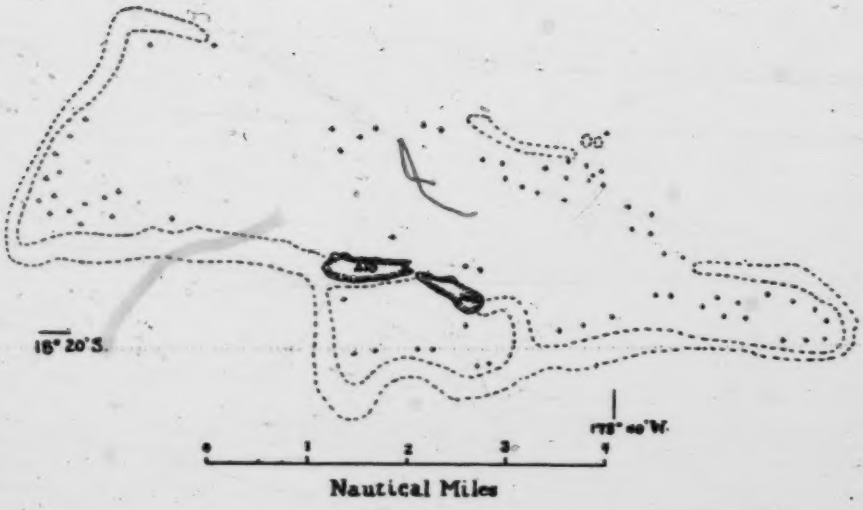


[p. 33]

9: Bryan N-5 (1924) 1924 OQ6 Lau OQ6

AIWA ISLANDS

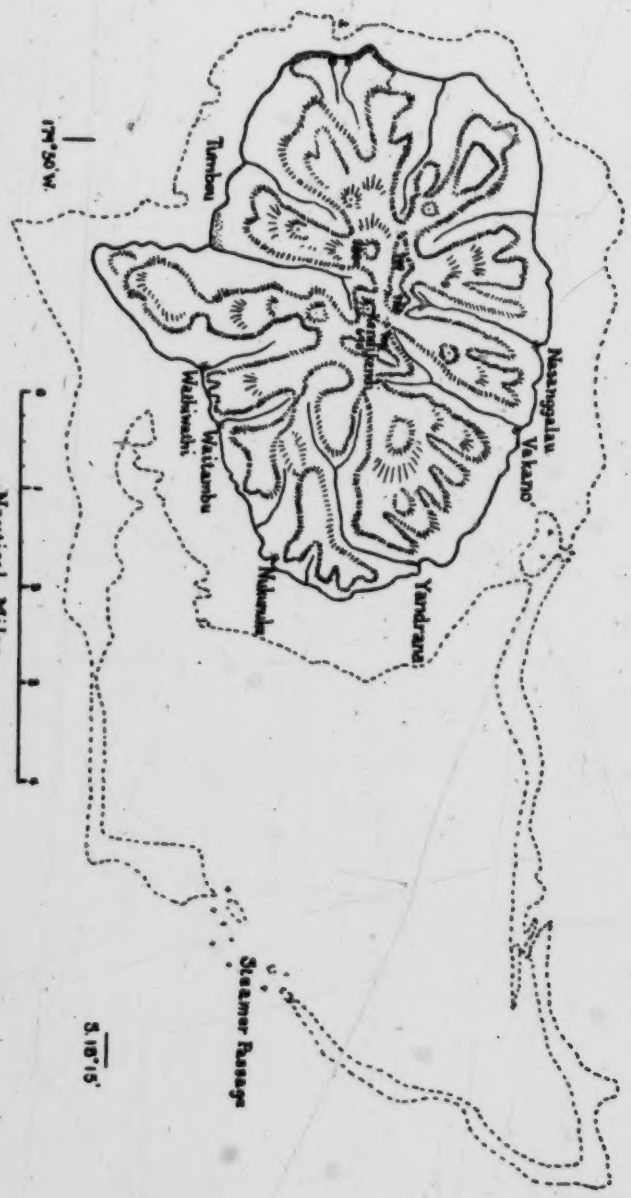
102
131
133



[p.39]

LAKEMBA I.

102
103
131
133
361

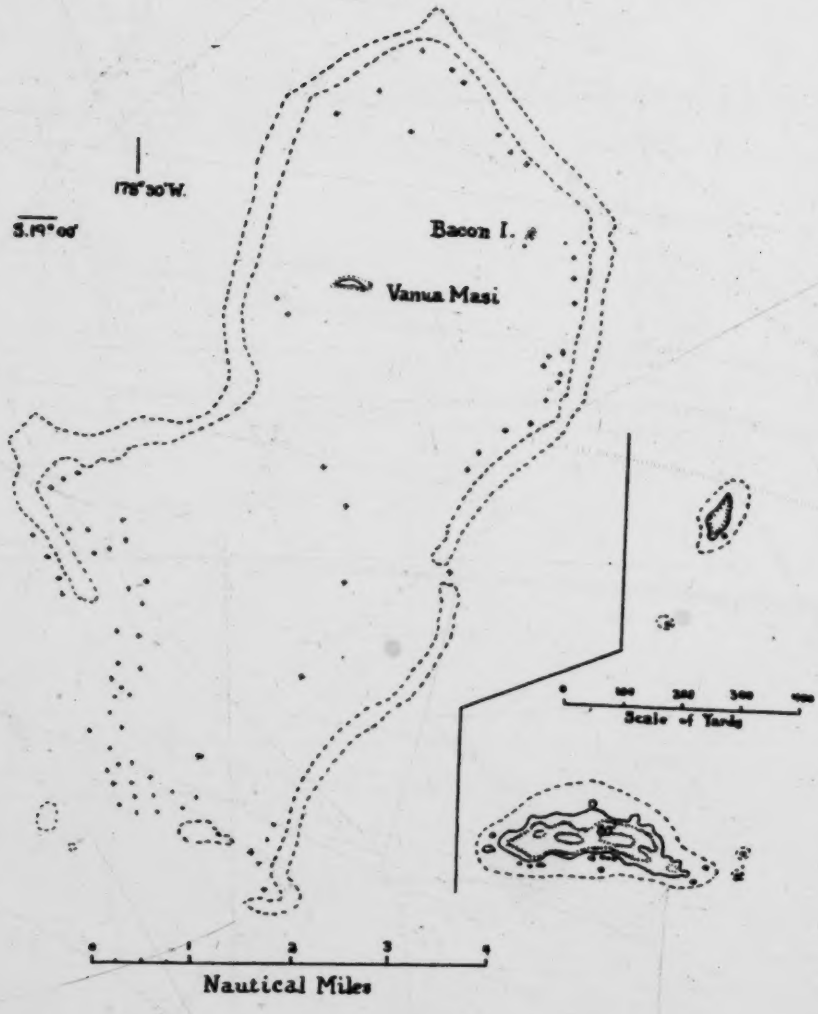


[p.41]

9: Bryan N-5 (1924) 1924 OQ6 Lau OQ6

Northern Portion of
MBUKATATANOA (or Argo) REEF
and details of VANUA MASI & BACON I.

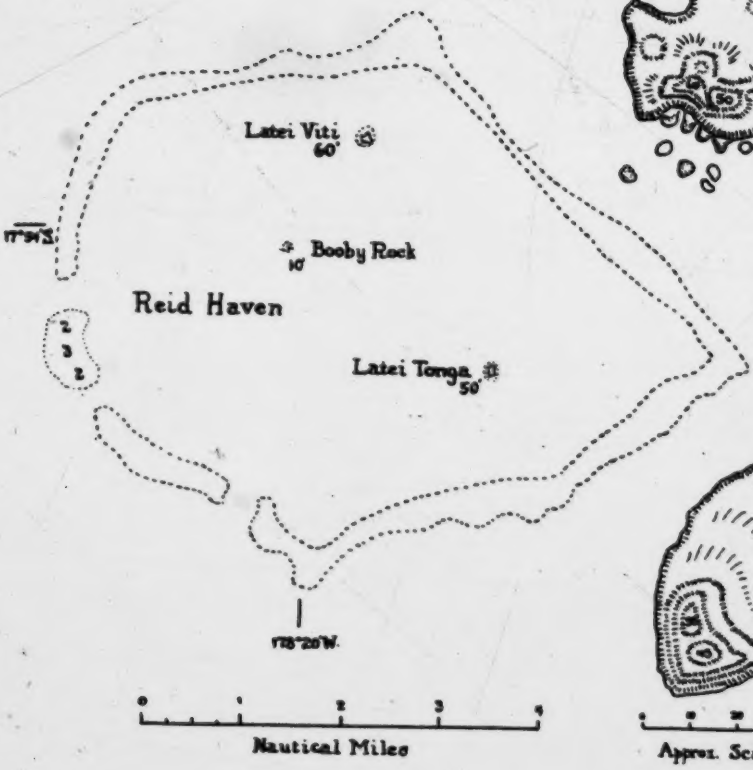
102
103
131
133



[p44]

REID REEF
Details of
Latei Viti & Latei Tonga.

102
103
131
133

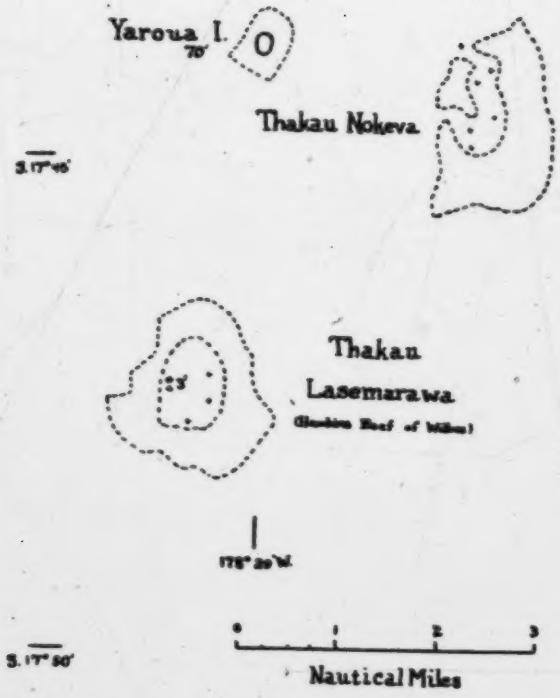


[p. 46]

9: Bryan N-5 (1924) 1924 OQ6 Lau OQ6

YAROUA I. and Adjacent Reefs.

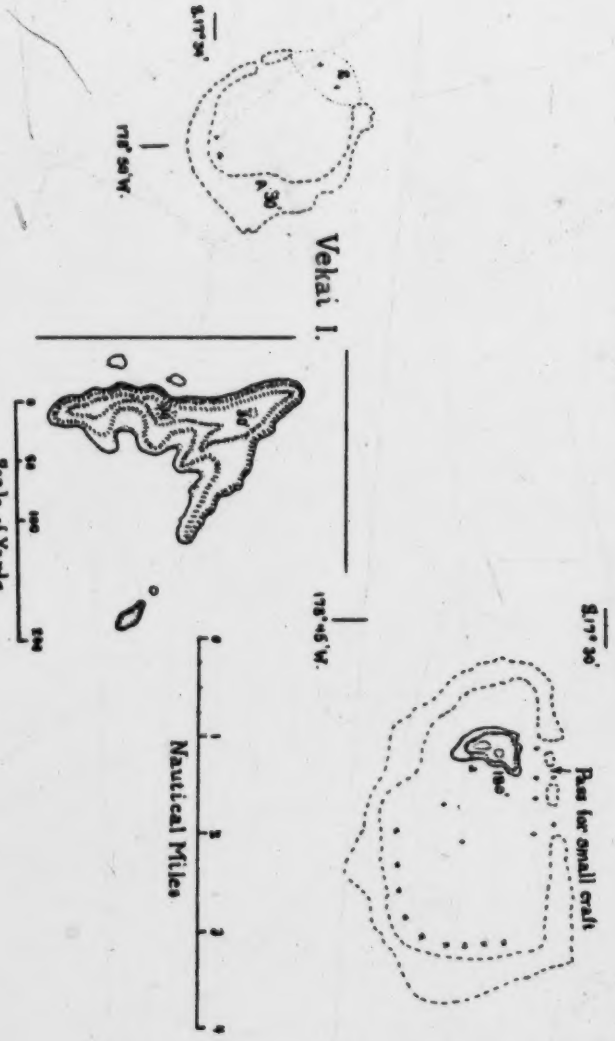
102
103
131
133



[p. 48]

KATAFANGA, VEKAI
Detail of Vekai.

102
131
133

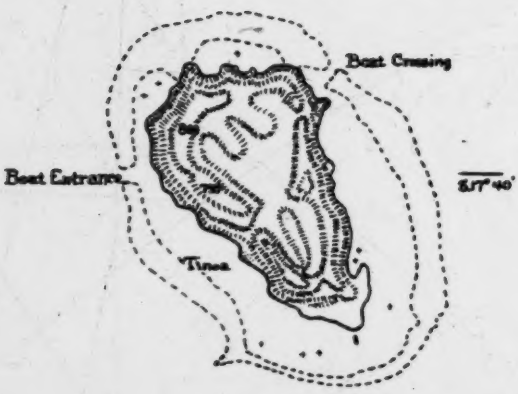


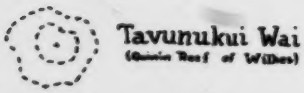
[p. 50]

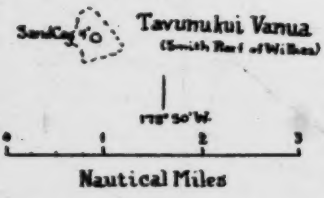
9: Bryan N-5 (1924) 1924 OQ6 Lau OQ6

TUVUTHA' I.

102
103
131
133
361







[p.53]

9: Bryan N-5 (1924) 1924 OQ6 Lau OQ6

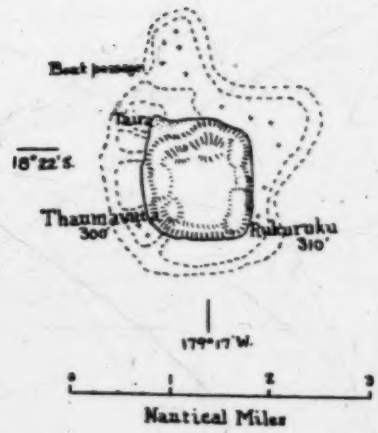
NAIAU I.

102
● 133
131
361

[p.55]

VANUA VATU.

102
103
131
● 133
361

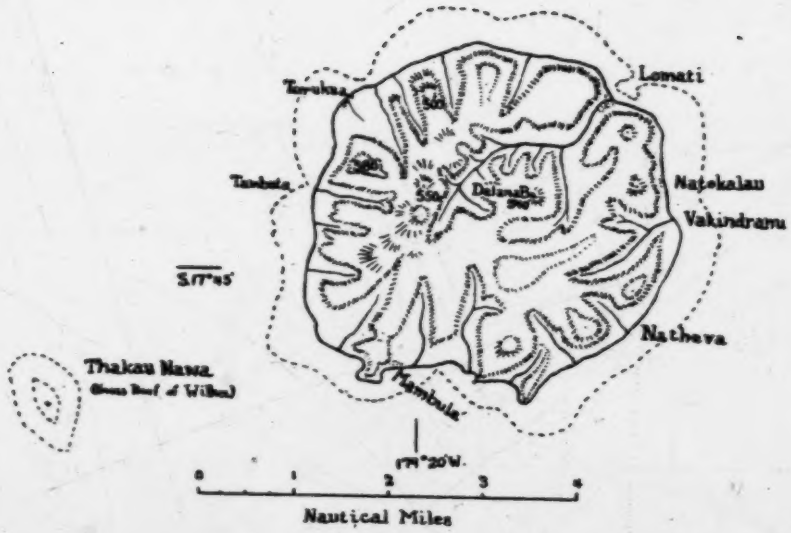


[p.57]

9: Bryan N-5 (1924) 1924 OQ6 Lau OQ6

THITHIA I.

102
103
131
133
361

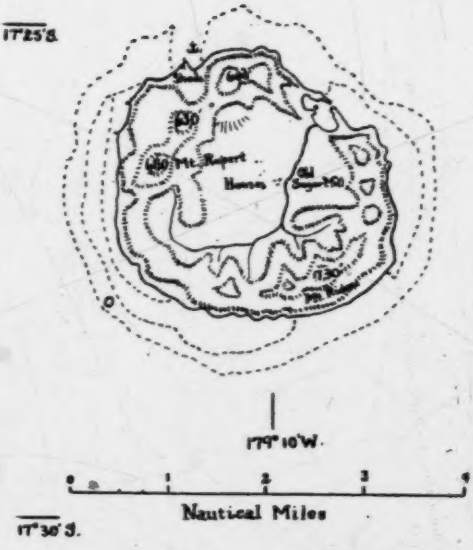


[p. 59]

9: Bryan N-5 (1924) 1924 OQ6 Lau OQ6

MANGO I.

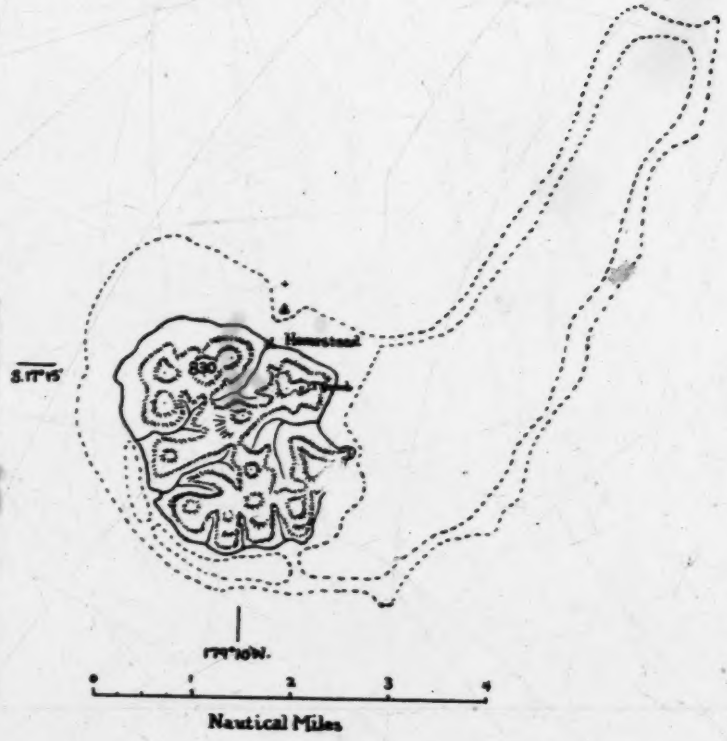
107
103
131
361
133



[p. 62]

KANATHEA I.

102
133
131
361



[p.65]

VANUA MBALAVU and nearby islands.

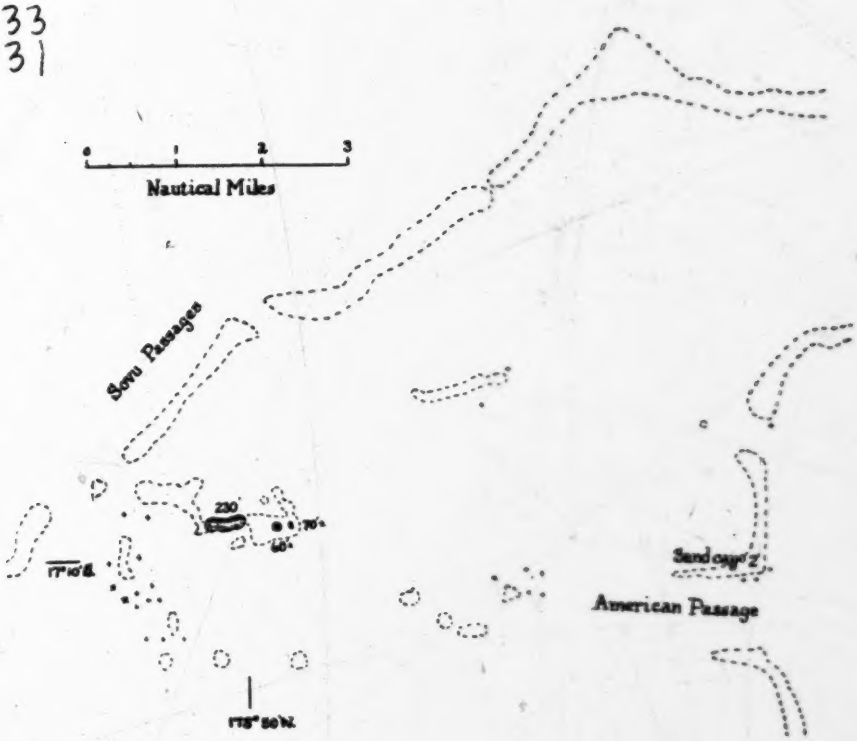
102
103
131
133

[p.72]

9: Bryan N-5 (1924) 1924 OQ6 Lau OQ6

SOVU ISLETS

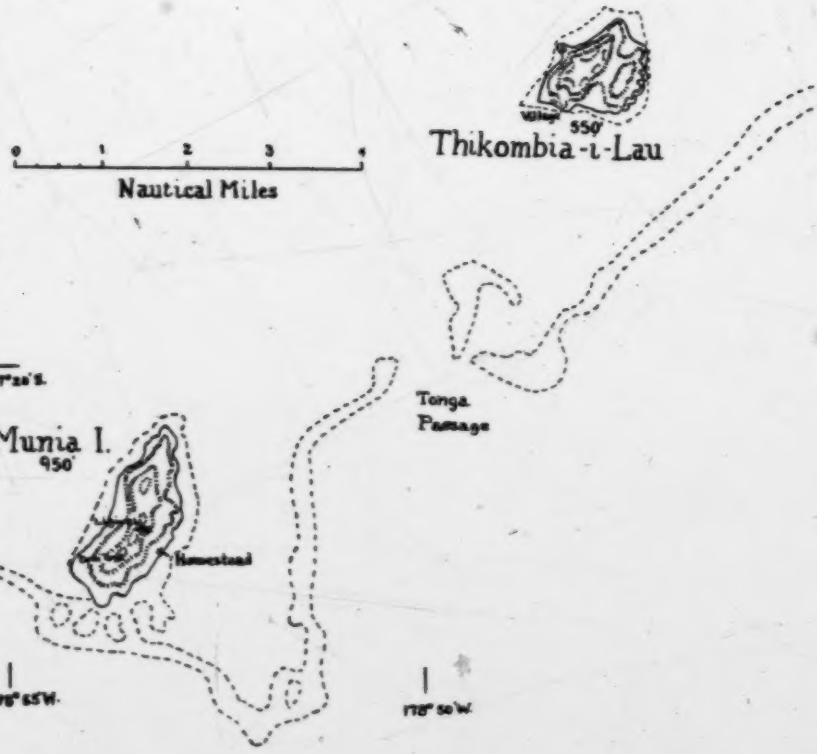
102
133
131



[p. 73]

MUNIA & THIKOMBIA - I - LAU

102
103
131
133
361

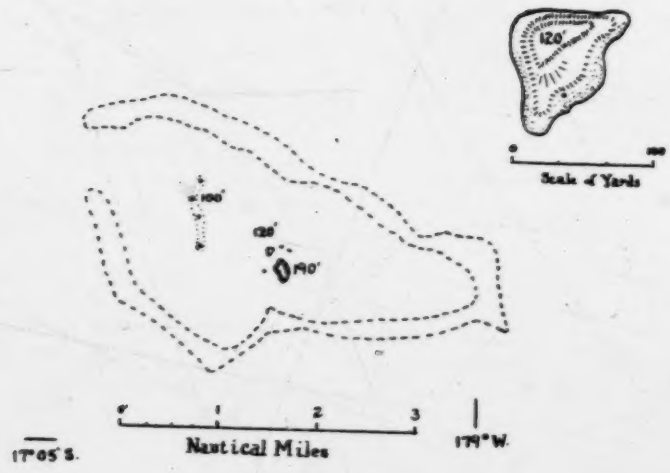


[p. 74]

9: Bryan N-5 (1924) 1924 OQ6 Lau OQ6

KIMBOMBO ISLETS and detail of middle islet.

102
131
●133

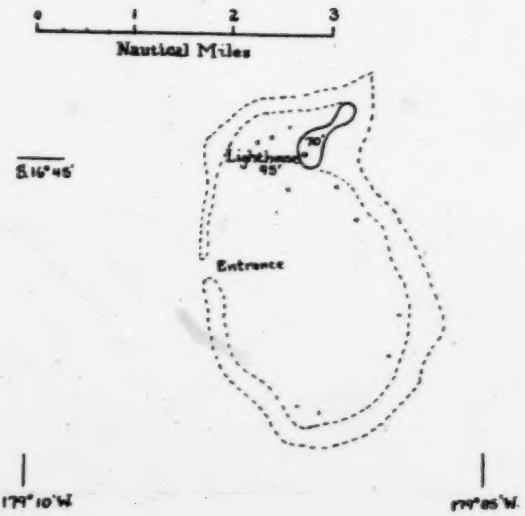


[p. 78]

9: Bryan N-5 (1924) 1924 OQ6 Lau OQ6

WAILANGILALA I.

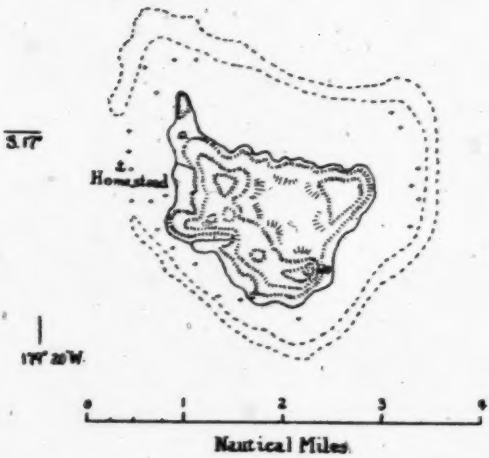
102
131
133
361
349



[p. 80]

NAITAUKBA I.

102
131
●133
361



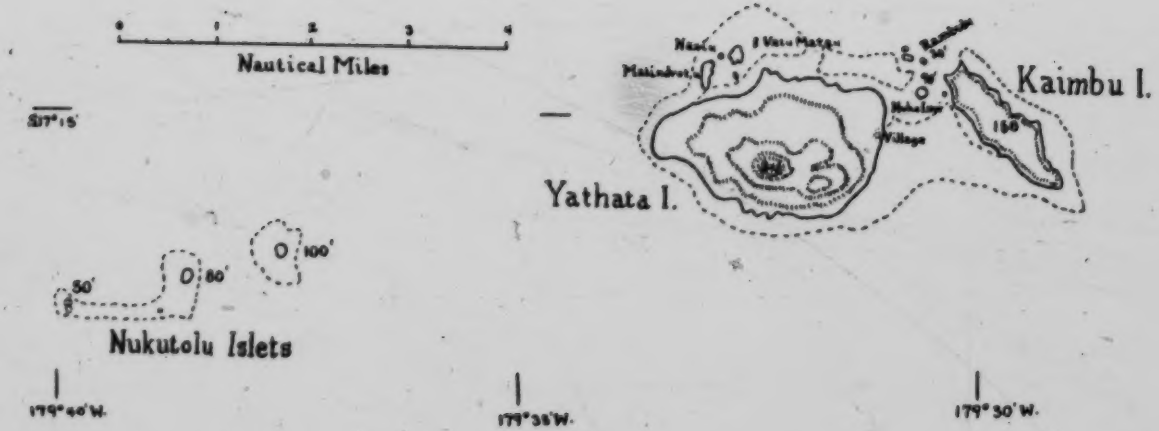
[p.82]

OQ6 Lau OQ6

9: Bryan N-5 (1924) 1924

NUKUTOLU ISLETS, YATHATA AND KAIMBU.

[p. 84]



102
103
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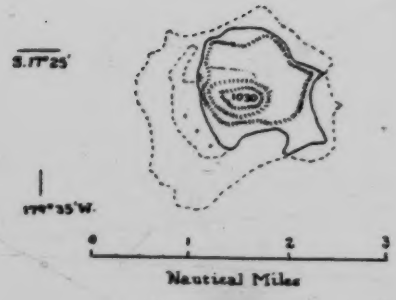
133
361

9: Bryan N-5 (1924) 1924 OQ6 Lau OQ6

VATU VARA I.

102
131
133



[p. 87]

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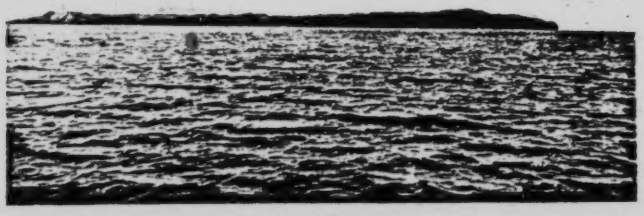

1. Most of the Coral Limestone islands are low and flat, without conspicuous elevations. Ongea Ndriti I., looking E.S.E. from a point about 200 yards inside Barracouta Passage.

2. A closer view of the N.W.side of Ongea Ndriti. Note the undercutting at the water level. The island at the left is covered with native fan palms, shown in fig.3.

[p.89]

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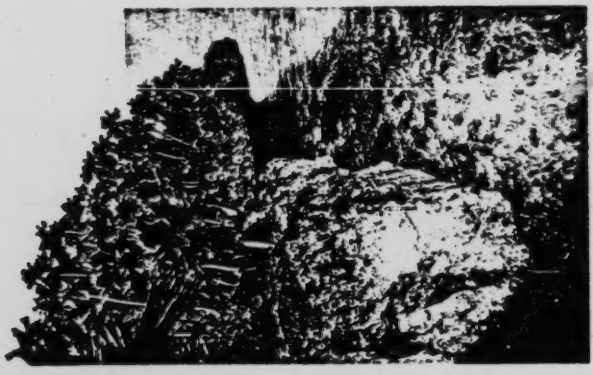
[137]



3. A typical small coral limestone island, off the N.W. side of Ongea Ndriti. It rises percipitously from the undercut ledge to a rough flat top covered with native fan palms.

4. The east face of Ongea Levu rises in a sheer wall, 100 to 200 feet high, covered with ~~stunted~~ stunted scrub and occasional wind swept fan palms.

[p.90]

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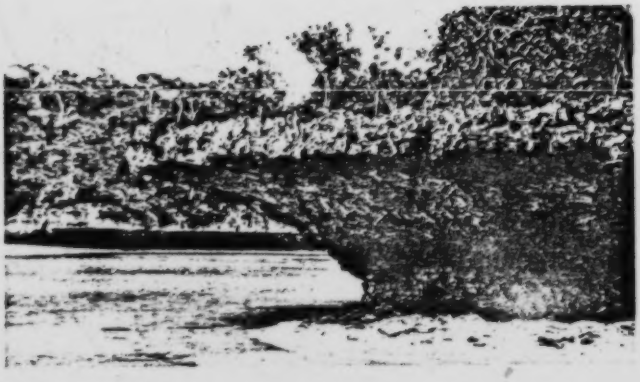
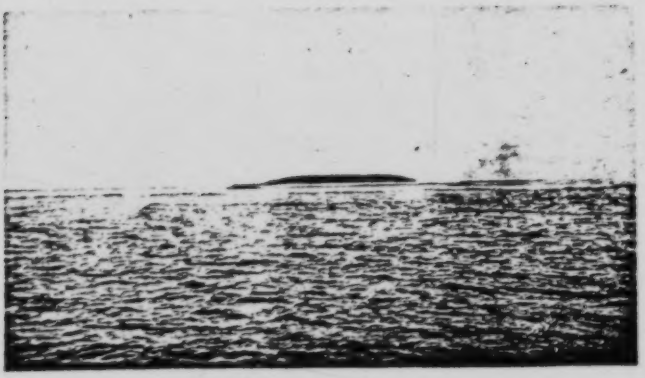
[137]



5. The undercut beach at low tide. This view is in the channel between Ongea Levu and Yamuia Islands. The lip of the ledge is about 9 feet above the sand flat or low tide level.



6. Naiambo islet from the W.N.W.

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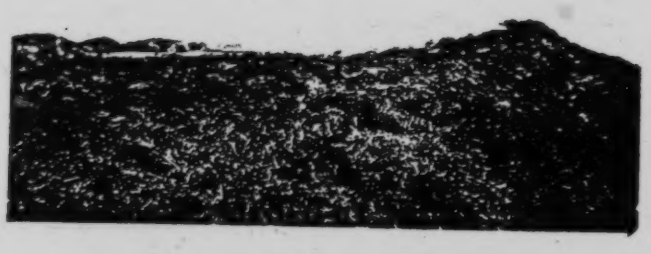
7-8. Yangasa Levu I. and the N.E.bay of Navutu-i-Loma, Yangasa Cluster.



9. The heavily wooded N.E. ridge of Navutu-i-Loma I. with Yuvutha and Navutu-i-Ra in the distance. The N.W. bay is at the left.

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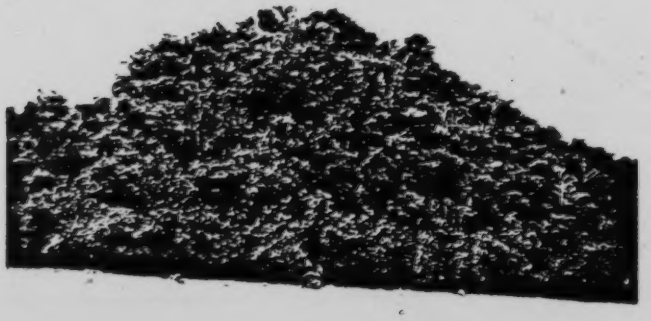
10. Mothe and the northern islets of Karoni I. from the summit of Karoni peak (120 feet), shown in 11. Note the little native cutter making for the passage.

[137]



11. The steep, wooded main limestone peak of Karoni I., 120 feet high.

[p.93]

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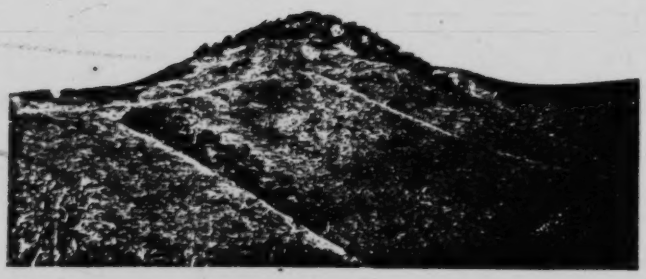
12. A typical valley on Mothe. In contrast to the heavily wooded limestone, the slopes of the volcanic islands are covered with grass, ferns, scrub, Pandanus and Casuarina trees, with groves of cocoanut palms toward the sea.



13. The central knob of Mothe is capped with low-land forest, which has worked its way up the valley bottoms.

[p.94]

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133
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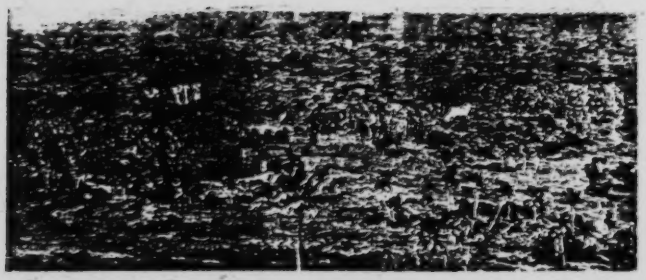
14. Delai oloi (470 feet), a volcanic peak on an otherwise limestone island. In the foreground are gardens cultivated by the natives. Kambara I.



15. From the summit of Delai oloi one obtains a fine view of the wooded central limestone basin of Kambara, stretching away to the S.S.E.

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16. Tokalau village and the north limestone wall of Kambara from the summit of Delai oloi; Wangava I. in the distance. Between the volcanic slope and the coral limestone formation there is a marked depression, seen in the foreground.

17. Olorua I. from the N.W. with Komo I. beyond (on the left).

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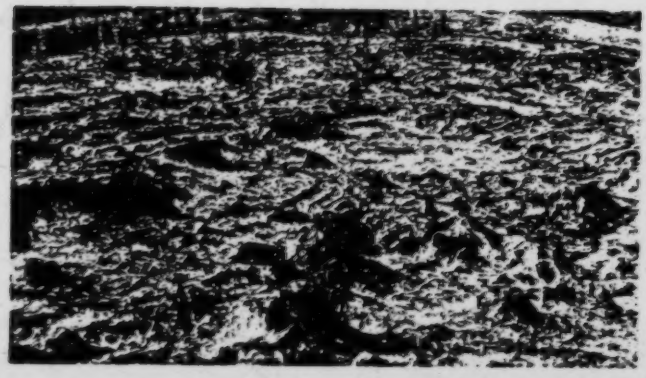
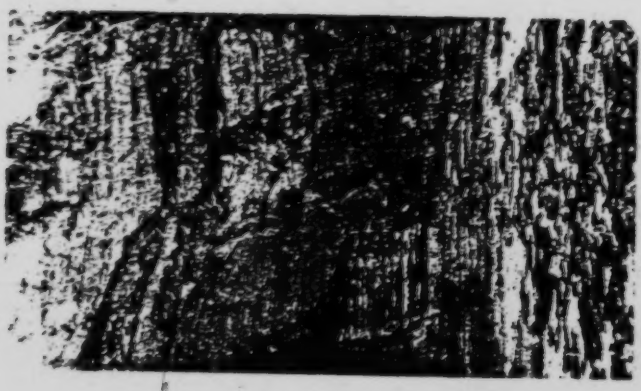


18. Outcrop of bedded strata on the low divide between the two main hills, Olorua I.



(Bottom)

19. Bedded Tuff at the S.W.point of Olorua I. These strata dip to the S.by E. between 5 and 10 degrees.

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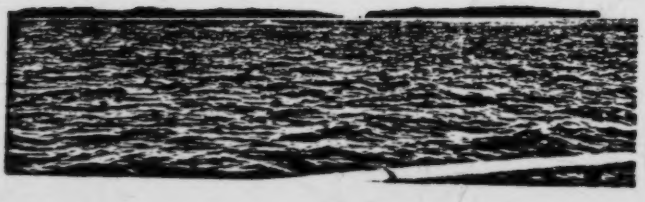
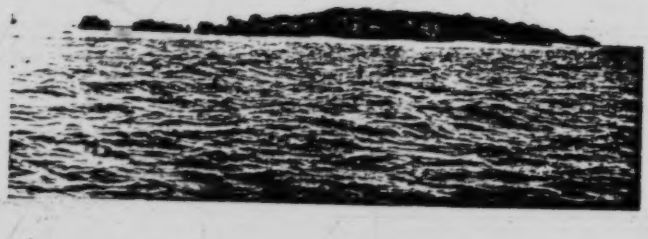


20. The Aiwa Islands, looking S. by W. from outside the line of reef and coral heads.



21. Varma Masi I. from the N.by E.

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22. The west face of Bacon Islet.

23. Latei Viti from the E. by S.

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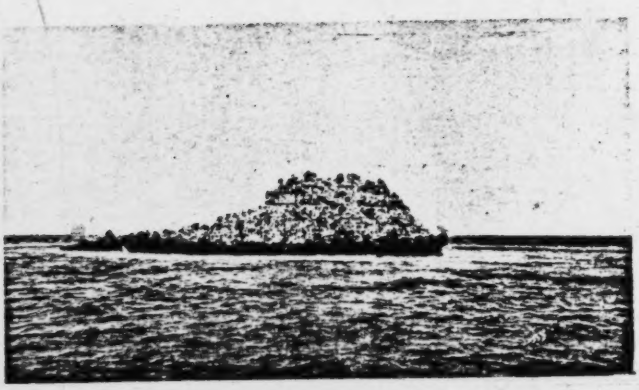

24. Latei Tonga, looking E.S.E.

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25. The northern third of Katafanga I. is of coral limestone formation, the southern two-thirds is volcanic. This is the abrupt transition between the two very distinct types; steep, heavily wooded limestone on the right; gentle, grassy volcanic slope covered with coconut palms on the left.

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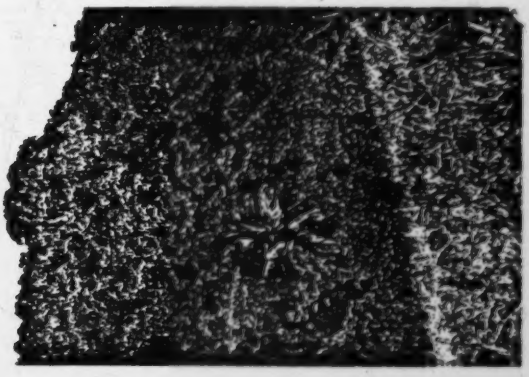
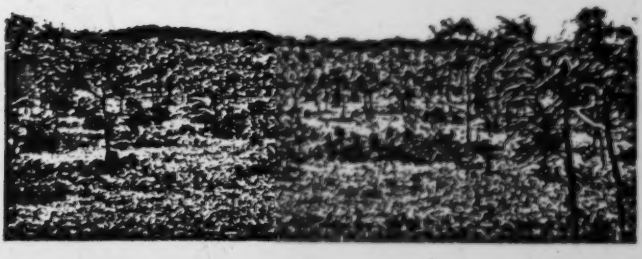


26. A highly elevated cliff of coral limestone, rising behind a grassy volcanic hill, on the N.E. side of Tuvutha'.



27. The volcanic basin, surrounded by coral limestone hills on the island of Vanua Vatu. This vegetation is typical of volcanic soil.

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28. The village on Vanua Vatu is one of the neatest in Lau.

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29. Volcanic and coral limestone hills near Tarukua village, Thithia.

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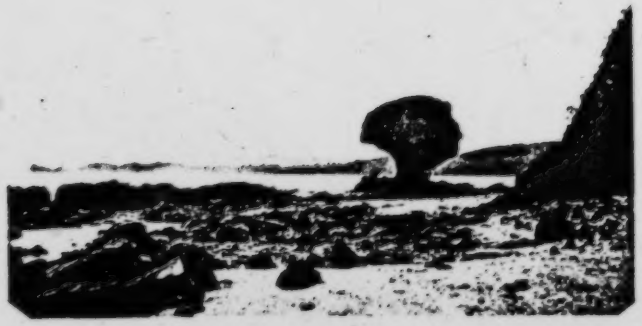
9: Bryan N-5 (1924) 1924 OQ6 Lau OQ6



30. Curiously eroded lava rock, Mambula' Bay, Thithia.

31-32. Panorama of Lomaloma and islands to the S.E. Left to right:-
Munia, Yanu Yanu, Susui, Malata.

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33-34. Panorama of Mango, from summit of Mt. Elder, 730 feet.

35-36. N.E. portion of Kanathea I. from the S.W. peak.

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37. All the villages on Vanua Mbalavu are connected by good paths. This is a typical section of one, north of Lomaloma.

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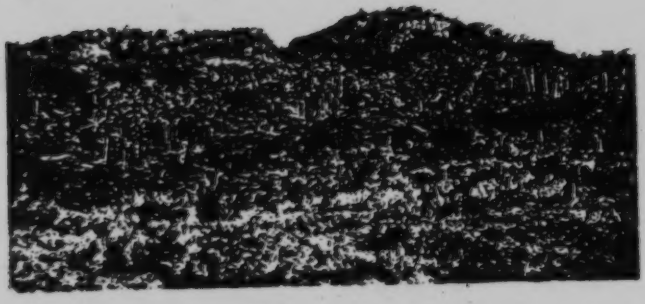

38. Central basin of Thikombia-i-Lau, of mixed volcanic and limestone formation. Looking east from near the center.

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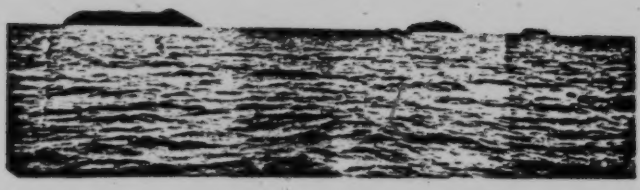
9: Bryan N-5 (1924) 1924 OQ6 Lau OQ6

●133



39. The Sovu Islets, looking N.W.

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40. Native fan palms on the smallest, eastern Sovu islet.

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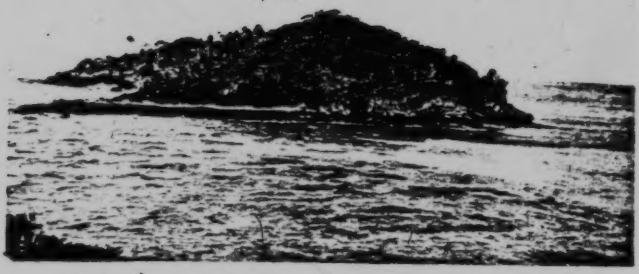
9: Bryan N-5 (1924) 1924 OQ6 Lau OQ6

●133



41. Middle Sovu Islet, looking west from the eastern islet. Large island of Vanua Mbalavu in the left distance.

42. The Kimbombo islets from the W. by S.

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43. The eastern Kimbombo islet is of coral limestone formation.

44. The middle Kimbombo islet is composed of bedded tuff of volcanic origin. The picture shows how close it is to the limestone eastern islet.

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(Bottom)

45. Bedded tuff formation in the north cliff of middle Kimbombo islet.

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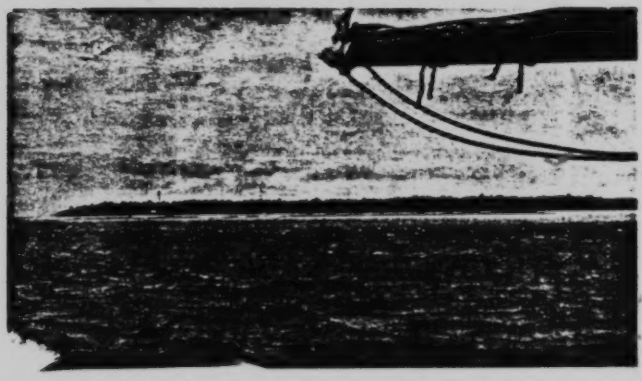

46. Wailangilala I. from the S.W. The island is low and sandy, rising to a height of 70 feet to the tops of the coconut palms. The lighthouse is at the left.

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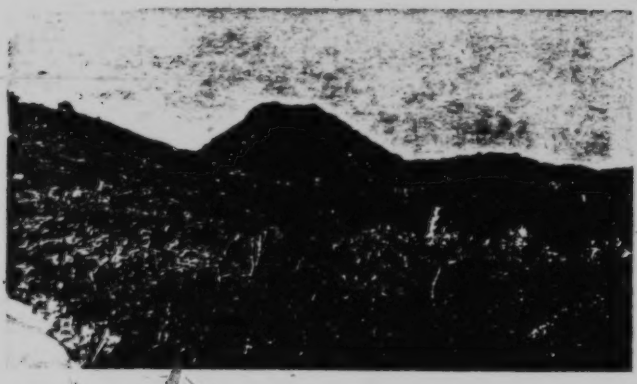
47. The 610 foot, flat-topped peak on Naitaumba, looking S.SW. along the eastern rim of the central basin.



48. Na Koro Levu, elevated limestone peak (840 feet), and the north slope of the grassy volcanic ridge, Dilla Thata, Kathata I.

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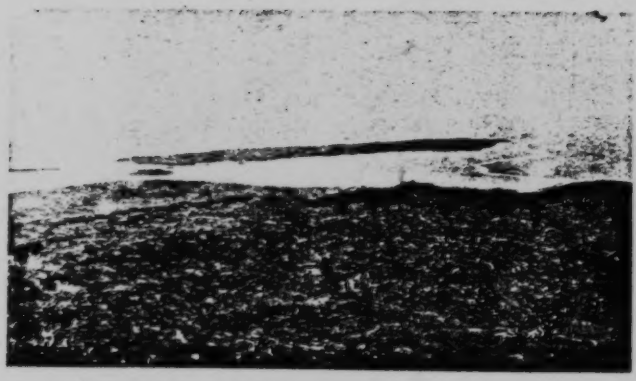

49. East slopes of Yathata and the island of Kaimbu, from the summit of Na Koro Levu, (840 feet).

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50. The highest elevation in Lau, Dillana, 1030 feet high, of upraised coral limestone, Vatu Vara I.

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10:St. Johnston G-5 (no date)1918
OQ6 Lau OQ6

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A SOUTH SEA SYMPOSIUM.

THE look-out at the mast-head raised his hand to signify "straight on." The long, evil-looking zigzag passage between the reefs was hissing with white foam behind us, and the blue water of the open ocean lay ahead. Not one of the twenty odd souls on board the little government yacht "Annandale" but breathed a sigh of relief, for this passage at Ono Island was one of the worst in the Lau group, and the Lau group owns the most dangerous reefs in Fiji. The engines were "chugging" merrily on, and we had only a few yards to go. Suddenly there came a tremendous *loka*, or surf wave, from starboard, the current fairly boiling in the narrow strip of deep water, and at the same time a fierce puff of wind heeled the vessel's stern over to the port reef. The captain sang out "Hard over," the helmsman promptly responded, but the engines were not powerful enough to take the unexpected strain, and the next moment we were being dashed like a toy boat among the breakers on the lee reef.

"Over with the life-boat," shouted the captain,